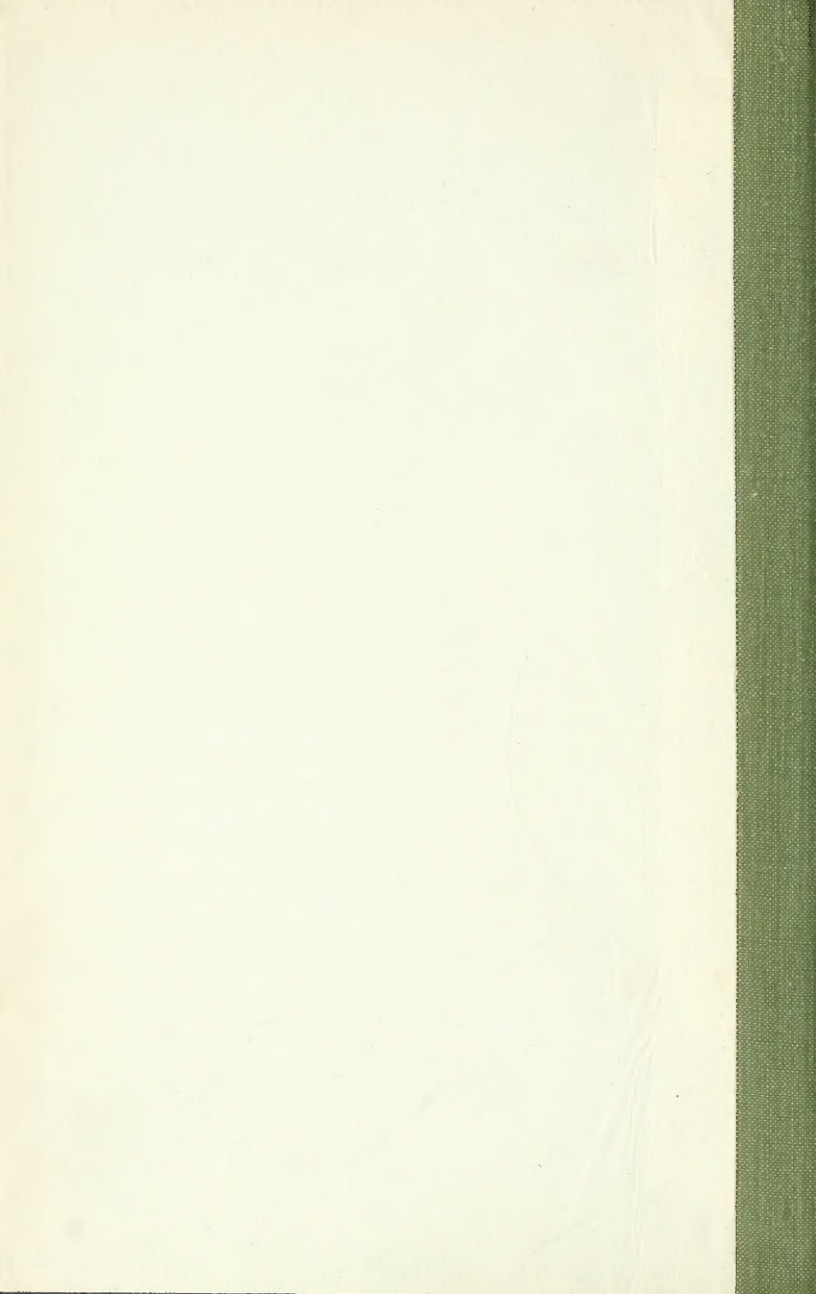


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THE OPHTHALMIC RECORD

A Monthly Review of the Progress
of Ophthalmology

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ORIGINAL ARTICLES.

CONICAL CORNEA—AN HISTORICAL REVIEW TOGETHER WITH A NEW NON-OPERATIVE METHOD OF TREATMENT.

BY L. WEBSTER FOX, A. M., M. D.

Professor Ophthalmology, Medical-Chirurgical College, Philadelphia

From the remote ages of antiquity alterations in the curvature of the cornea have, no doubt, attracted the attention of careful observers in medicine, but the classification and consequent systematic study of these variations have until comparatively recent years been greatly neglected, thus accounting for the inability to properly treat this condition. It is not unlikely, that many of these abnormalities in curvature escaped detection in cases in which the cornea remained perfectly transparent.

Conical cornea, as we understand it at the present does not seem to have been known to the ancients, as no satisfactory account of it is to be found in the writings of the Greeks, in Roman literature, or in the books of the Arabians. It is possible, however, that Ali Ben Isa in his systematic work on Anatomy, Physiology and Diseases of the Eye described it. Ambroise Pare¹ alludes to the incurability of corneal staphyloma, but whether he included conical cornea within this term is a matter of considerable conjecture. Perhaps the earlier systematic study of the condition is to be found in the dissertation on "Staphyloma Diaphanum" published by Mauchart at Tübingen in 1748. Demours² states that his father had noticed it as long ago as 1747.

The various terms by which the affection was known accounts in part for the lack of definite knowledge concerning it. Many of the ancient medical writers no doubt observed the abnormality but described it under terms most convenient for their use. This lack

of uniformity consequently resulted in endless confusion. Taylor in 1766 in his *Nova Nosographia Ophthalmica* described it under the name "Ochlodes." Scarpa in 1801 observed a case of conical cornea in a female but from his description of it he was greatly perplexed as to its true nature and included it under "Staphyloma." By reason of its translation into most all of the modern languages, the work of this distinguished surgeon spread a knowledge of conical cornea throughout all the civilized countries of his time, although by some there was a tendency to attribute this particular observation to Leveille, the French translator.

Apart from these, the ancient writings on this subject, as before stated, are much hazed if they exist at all. In the warm countries of Europe it must have been of extreme rarity as it escaped the keen observation of Garcia and Don Jose Alarson. In Holland the Dutch translation of Reute's work is perhaps one of the best early descriptions. In Germany the condition is said to have been well-recognized as early as 1754. In the latter part of the eighteenth century, however, it was as yet very little known as Beer had never satisfactorily described it and Himly, of Goettingen, had never seen it. Beer³ mentions that there is a kind of staphyloma in which the cornea is inconceivably distended but does not lose its transparency. In one case he observed the vision was markedly diminished, but the true nature of the condition failed of detection. Richter⁴ states in his work that he had never seen the affection. To Burgman⁵ is accredited the history of a very remarkable case in which the cornea of both eyes of a person who was hanged were so prodigiously extended that they reached to the mouth like two horns. (Nottingham, in commenting on this case, wittingly remarks that without a doubt it belongs to the poetry of the subject.) Benjamin Bell⁶ in his writings confused dropsy of the anterior chamber and staphyloma with conical cornea, as had been done by many other observers of his period. Demours treated of it under the title of transparent staphyloma.

The discovery of astigmatism by Thomas Young⁷ and its subsequent study by Airy, Donders, Helmholtz, and other observers in the early part of the nineteenth century aided in clearing up the confusion that existed at this period regarding variations in corneal curvature. The knowledge of the fact that Airy was the subject of myopic astigmatism and believed the affection to reside in the crystalline lens no doubt greatly influenced Sir William Bowman⁸ who suggested and practiced removal of the lens in the treatment

of conical cornea. He believed that the form assumed by the cornea was the effect of a morbid growth of that structure and the short sight of the patient was to be attributed to the increased refractive power of the part which together with that of the crystalline lens brought rays to a focus far short of the retina. This being the case he concluded that as it was impossible to remove the morbid state of the cornea without rendering it more or less opaque, a useful degree of vision might be restored by removal of the lens. He was subsequently able to substantiate this by the case of a woman in whom both cataract and conical cornea were present. After removal of the lens she was able to see very well without the aid of the convex lenses usually employed in aphakia. In another case of his, that of a young girl with conical cornea, who possessed little more than protective vision, he removed the lens by the operation of discission and one year later she possessed good reading and distance vision without convex lenses which when used served to blur the sight very much. The similarity between these histories and the records of cases of high myopia reported recently by Sir William J. Collins⁹, A. Bronner¹⁰ and other European ophthalmologists can not but suggest the possibility of error in diagnosis in Adam's cases.

With the distinguishing of conical cornea from astigmatism and staphyloma, the true nature of the cornea in keratoconus became the subject of considerable discussion. Adams, as we have already seen, described it as a morbid thickening growth of the substance of the cornea, while Wardrop¹¹ believed it to arise in consequence of a change in the structure of that organ. He states that in cases which he had examined there was irregularity of the cornea in a small area, having very much that appearance which is usually observed when a thin pellucid membrane fills up a part of the cornea that has previously been destroyed by ulceration. This irregular portion of cornea at the apex is generally very thin and sometimes becomes clouded and opaque. The views of Jaeger,¹² of Erlangen, serve to confirm these observations. In dissecting eyes affected with conical cornea he found that the apex of the cone was very thin but the circumferential portion was thickened. Middlemore¹³ observed a case in which the laminae of the cornea were less movable on each other than normal; its circumference was of natural thickness, but the apex was much thinner than usual and opaque on its exterior only. Walker likewise found that the cornea was generally much thinner than normal in this affection, especially in its central portion.

Guthrie¹⁴ stated that the cornea was decidedly thinner than usual in this condition and that in the presence of irritation the apex of the cone became opaque and represented in shape a conical staphyloma. Sanson in 1836, on the other hand, published a statement in which he claimed that the anterior or prominent part of the cornea is hypertrophied or converted into a solid, thick and transparent piece; an opinion not unlike that of Sir William Adams. Mackenzie¹⁵ believed it to be due to faulty nutrition of the cornea and suspected it arose sometime from thinning of that structure attending a transparent cicatrix or dimple such as follows phlyctenulae.

Perhaps the first observer to study the condition properly was Nottingham,¹⁶ of Liverpool, who carefully described it and distinguished it from staphyloma. His period of the nineteenth century was rich in ophthalmic discoveries and with the practical application of the knowledge of astigmatism in its several varieties and its correction by cylindrical lenses by Donders, Dyer, MacAllister and others, the number of cases of conical cornea became considerably less. Nottingham's observations were not confined to human beings, but extended through the domain of comparative anatomy. He states that in 1852 he noticed conical cornea in the eyes of a goldfish, but had never noticed a case of true conical cornea in the dog, although in more than one instance in carefully made autopsies he found a thinned condition of the central portion which was very faintly opaque but without conical elevation. Apparent blindness was the rule during life in these cases.

From the foregoing statement it may be easily seen that there existed many widely different opinions regarding conical cornea and for purposes of further discussion I take the liberty of stating the accepted definition of the condition of the present period. Conical cornea may be said to be a conical protrusion of a transparent cornea due to increased intraocular pressure and thinning of its central portion. It never ruptures spontaneously. While this definition serves for classification purposes it is insufficiently descriptive so that the following quotation from Mackenzie¹⁷ seems appropriate at this time: "In the earliest period of this disease shortsightedness is the principal effect which it produces on vision; when more advanced nothing is seen by the patient through the center of the cornea; all the sight which he enjoys is either over the nose, or toward the temple, and in its sphere is extremely limited. Still, however, by strongly compressing the eye with the half closed lids,

or with the finger, so as to limit the pupil and bringing the object close toward one or the other side of the eye, generally toward the temporal, the patient is sometimes even able to read. The objects appear multiplied to an eye the subject of conical cornea owing to inequalities in the curvature." This multiplicity of images is designated as *polyopia monocularis*. Sir David Brewster was among the first to notice this symptom. In a patient of Wardrop¹⁸ examined by Brewster there was the complaint that a candle held before the eye was multiplied five or six times. By holding a candle fifteen inches from the cornea and keeping his eye in the path of the reflected rays, Brewster observed variations in the size and form of the image of the candle. The reflected image regularly decreased in size when it passed over the most convex parts of the cornea, but when it came to the part nearest the nose it alternately expanded and contracted and underwent such alterations as to indicate the presence of a number of spherical eminences and depressions. Strange as it may seem it is yet true, that none of the many observers of this affection, ancient or modern, with the exception of Nottingham, have called attention to the *absence of chromatic aberration*.

The objective examination of an eye the subject of conical cornea is always very satisfactory. Viewed from in front the eye has a peculiarly brilliant and sparkling appearance and sometimes resembles a drop of clear water upon a convex glass surface. Viewed in profile, owing to the double refraction of light, the cornea appears dark between the apex and base of the cone. When the examination is conducted in a darkened room one sees by the aid of the ophthalmoscope an interrupted wavy reflex instead of a clear red one. The annular shadow seen in this way is particularly characteristic and was first pointed out by Sir William Bowman¹⁹. On throwing the light upon the cornea a bright reflection is received through the center of the cornea which gradually shades off and becomes darker toward the base so that the central bright spot is surrounded by a dark zone which in turn is again encircled by a red ring. If a light is thrown upon the center of the cornea at different angles the side of the cone opposite the light is darkened. The central red zone (in which is obtained a reverse image of the fundus) is due to the reflection of the fundus through the central conical portion of the cornea and the outer red ring to the reflection through the normal peripheral portion.²⁰ The corneal reflex is suddenly elongated when the eye is rotated in different directions. In the opinion of Knapp²¹ the dark zone is due to diffusion and

complete reflection of the rays of light at the base of the cone, where it passes over into the normal curvature of the cornea.

Donders²² has shown that on the ophthalmoscopic examination of such an eye there is considerable parallax on moving the convex lens (Helmholtz's Ophthalmoscope) in front of the patient's eye. A displacement of a portion of the disk and retinal vessels results similar to that seen in glaucomatous excavation of the nerve.

The causes of this very interesting affection are unknown. The normal variations in the shape of the cornea in the members of the animal kingdom may in part account for it. Thus it is seen that the cornea is flat in fishes and aquatic animals; curved in large animals, mammalia, and birds and rounded in the extreme in high flying birds of prey. It has been stated that on account of the texture of the cornea being more spongy in young persons than in adults it is more liable to staphyloma and keratoconus during youth and early adolescence.²³ Wardrop states that the cornea is most convex at the earlier periods of life and according to his observations it is liable to acquire its greatest degree of convexity about the age of puberty. Conical cornea rarely if ever begins after maturity; most cases occurring in girls between the ages of ten and sixteen years. This fact induced Henry Power to believe that it was due to menstrual disorders, but Lawrence²⁴ states that he has seen it in perfectly healthy country girls and in healthy subjects in whom no constitutional cause whatever could be detected. It usually begins in one eye and after a time also attacks the fellow eye.

It may be congenital or post-natal. Wardrop observed it in a boy of eight years. Ammon²⁵ states that he encountered it in several sisters who had labored under it from birth. Wilde is responsible for the assertion that in the congenital form both eyes are involved, but Cooper had never seen a case which he could regard as congenital. The latter observer attributed it to—1, An enfeebled state of constitution and a low condition of nervous energy; 2, congestion; 3, ulceration of the cornea; 4, inflammation of the cornea; 5, excessive weeping. Mackenzie had seen it follow scarlatina and traumatism and occasionally as a sequence of prolonged weeping. Nottingham relates instances in which it followed keratitis and traumatism and Wimpe,²⁶ *Zeitschrift für die Ophthalmologie*, gives an account of three cases associated with a peculiarity in the shape of the head.

From statistics collected from various sources it has been shown that conical cornea occurs with freatest frequency in Asia among the

Mongolians, particularly in Chinese. This may be in part accounted for by the greater prevalence of ophthalmia in these regions (Nottingham, in his study of the subject, thoroughly digested all the available statistics of his period, from which I take the liberty of abstracting). The report of the eye cases in the hospital at Chusan, as given by Mr. Lockhart in the Chinese Repository for 1841, Vol. X, shows that out of 1,554 cases more than 1,500 were attended by corneal affections. In 342 cases observed by Hobson at the same period, 260 were attended by disease of the cornea. From these and other reports it may be easily seen that in these countries there is a greater tendency toward diseases of the anterior portion of the eye than in other countries. It has been suggested that conical cornea, as it occurs in China, is in some way connected with the pyramidal or conical-shaped head characteristic of the Chinese people. This has not been confirmed by observation, as in the Esquimaux and other widely separated races in which pyramidal-shaped heads are common, conical cornea does not seem to be of frequent occurrence.*

Ophthalmia is, no doubt, a frequent factor in the production of the condition. Julian Van Roosbroeck, of the University of Ghent, observed it in numerous instances as a result of this cause among the soldiers of Flanders. He devised a special treatment for it which will be considered later. The influence of climate is such that its consideration can not be ignored, yet upon careful reflection it can not but appear to bring about its effect in a very indirect manner. In warm countries ophthalmia is very prevalent and this fact is potent in directing attention toward climate as an etiologic factor. M. W. Cooper²⁷ shows as a result of his statistical studies that it is unknown in the north of Germany; in the north of England it is less common than in the south and west; in Scotland rarer than in England, while in China it would seem to be of common occurrence. In 208,970 ophthalmic cases, upon which Cooper's calculations were made, 194 were examples of conical cornea giving a general average of one in 1077.16. Isaac Hays²⁸ states that in Philadelphia (1854) he had seen but two cases. In the enormous service at the Medico-Chirurgical Hospital, Philadelphia, during the past ten years I have seen but five

*My own personal experience demonstrates the extreme variety of conical cornea among the Indians. In over 4,000 Indian children examined I have encountered the affection but twice, once in a girl belonging to the Oneida tribe, Wisconsin, and once in a half-breed male of the Chinook tribe, Washington. During a recent visit to Alaska I had occasion to examine at Sitka and Douglas Island over 500 native Alaskan Indians, who are grouped in four classes, viz., Koloshians, Kenainaus, Aleuts, and Esquimos, and in none of these was it possible to detect the slightest suspicion of this condition.

well marked instances of the affection. The rarity of the condition at present is accounted for by the ease with which we are able to exclude cases of mixed and irregular astigmatism.

The influence of the nervous system in the production of conical cornea deserves passing mention. As early as 1712 it was shown by Pourfour du Petit that division of one-half of the great sympathetic in dogs would produce nutritional ocular disturbances manifested by changes in the cornea. Hannover,²⁹ in the first half of the nineteenth century, published a detailed report of experiments relating to the modified nutrition of the cornea after removal of the superior cervical ganglion of the sympathetic. J. H. Pickford,³⁰ however, was the first to associate conical cornea with disturbances of the sympathetic nerves. He believed that it was due to some disturbance of the function of the great sympathetic and par vagum which was reflected through the lenticular ganglion and fifth nerve to the nutrient vessels of the cornea itself, and he devised a treatment with a view of remedying this disturbance. Kirke and Paget held views similar to those of Pickford.

Treatment.—In the review of the treatment of conical cornea there is, as in its description, much of interest. Many of the older surgeons denied the possibility of restoring vision to any degree in most cases, yet Sanson has related a case in which spontaneous cure took place after the affection had existed several years. On account of the dearth of optical apparatus, most of the early methods of treatment were surgical in character. The seton was employed by Flarer, an Italian surgeon, who passed a fine needle, carrying a delicate silk thread, through the affected tunic.

Benjamin Bell³¹ was among the first to perform paracentesis of the anterior chamber in this condition. His method consisted in passing a knife or flat trocar behind the iris, after which a seton was employed. Littell³² used silver nitrate in solution with a view to lessening any incipient opacity present in the apex of the cone.

Gervis employed a treatment which may be quoted as follows: "With a view to breaking up the laminae of the projecting cornea and to promote absorption of what I considered its thickened structure or hypertrophy, I punctured it several times with a couching needle and about three times a week applied to the conical center argenticum nitrate, making a sweep across it; the puncturing with the needle produced some opacity of the globular-shaped projection, just as is seen after severe inflammation of the cornea.

Tyrrrell³³ was successful in relieving several cases by altering

the position of the pupil. He punctured the cornea with a broad needle near the corneo-scleral margin at the lower and outer part, after which he introduced a small blunt hook to catch the pupillary margin of the iris, and drew it out far enough to bring the pupil from the center to the lower and outer part of the cornea. The prolapsed portion is then allowed to remain or may be cut off with scissors. According to Wharton Jones,³⁴ Adams and Middlemore had previously proposed the same operation. Sir William Adams' name is, however, more closely associated with the operation for removal of the lens, which he performed with success in this condition.

M. Desmarres³⁵ advocated puncture of the cornea, after which light but long continued pressure should be applied. Shortly afterward Mackenzie published the statement that evacuation of the aqueous humor was of no value whatever in this condition. Division of the recti muscles in conical cornea had been suggested some time prior to 1854, but was not seriously considered. G. J. Bull's recently reported case³⁶ of astigmatism, in which a cure was effected by a complete subconjunctival tenotomy of the external rectus, indicates the possibility of relief in conical cornea by this means. Fario, an Italian surgeon, produced drainage of the aqueous humor by excision of three small portions of the cornea. Vision was improved by this procedure.

Von Graefe,³⁷ in an interesting case of conical cornea, produced ulceration of the apex of the cone and subsequent contraction and flattening of the cicatrix. His operation consisted in passing a very small cataract knife (Von Graefe model) into the middle layers of the cornea just at the apex of the cone to the extent of about one line, after which it is withdrawn; a small superficial flap is thus formed, which is seized with a very fine pair of forceps and snipped off at its base with a pair of curved scissors in order that a superficial gap may be left at this point. Great care should be exercised in entering the knife to prevent its penetration of the entire thickness of the cornea; should this occur the operation should be postponed for a few days until the perforation closes. On the day following the operation a finely pointed stick of mitigated silver nitrate is lightly applied to the floor of the gap and immediately neutralized by a saline solution. The application is repeated at intervals of from three to six days until a slight, faintly yellowish infiltration is formed. Atropine should be instilled and a bandage applied to guard the eye from exposure. Improvement becomes manifest only after the infiltrate undergoes contraction, and this usually requires about five or six weeks.

Bader⁸ reported nine cases in which a more or less flat cornea was produced by the following method of treatment. A delicate curved needle, carrying fine silk or silver wire, is passed through the cornea in its horizontal diameter close to the point of the cornea to be removed. The point of the needle is then carried horizontally across the anterior chamber and is thrust through a point of the cornea opposite to the point of entrance and close to the portion of the cornea to be removed. The needle is left in the cornea until the top of the cone has been removed, as it serves to protect the lens. The head of the needle is held in one hand and the lower half of the cone is divided with a Beer's knife, the needle is then released, the small flap seized with an iris-forceps, and the rest of the cone removed with scissors. The needle is then drawn completely through the cornea and the ends of the thread tied so as to unite the edges of the wound.

Nottingham states that up to 1854 neither transplantation or glazing of the cornea had been thought of in England. Transplantation as recommended by Himly had been tried in Germany, France and America, but without success. Nussbaum proposed glazing of the cornea after experimenting with the operation on rabbits. He prepared a sort of glass button with two little offsets or folds to enable it to hold on and be steady in the cornea; a short transverse incision is made in the cornea and the glass piece, as it were, buttoned in, and this can be done without any after and long continued irritation of the eye. In his rabbits, Nussbaum states that the glass remained fixed and steady.

Nunnely modified Graefe's operation by cutting off the corneal flap and uniting the edges of the wound with delicate sutures. Solberg Wells³⁹ believed iridectomy to be the best operation. Bowman's treatment consisted in removing a small apex of the cone by means of a trephine. Multiple punctures of the cornea were recommended by Tweedy. Chisholm perforated the cornea by means of a needle heated to white heat, and the galvano-cautery has been employed by Knapp, Swanzy, Critchett, Williams, Bickerton, and other ophthalmic surgeons.

Non-Operative Treatment.—It is extremely interesting to note that medical treatment enjoyed a certain vogue in the management of this annoying affection even after its true nature was recognized. Van Roosbroeck employed a strong solution of tannin in Peruvian or oak bark in addition to cauterization with the solid stick of silver nitrate. Pickford⁴⁰ used emetics and purgatives with the view of influencing the sympathetic system. His favorite prescription was:

R Zinci Sulphat. ʒ i. Mag. Sulph. ʒ iv — *primo mane quotidie sumend.* Littell advised that the patient should abstain from all close exertion of the eye and suggested the use of belladonna. Arlt, Wallace, and Stenheim, working individually, found improvement to follow the use of eserine and a pressure bandage. Mackenzie showed that the progress of the affection might be materially retarded by rest of the eyes, exercise in the open air, attention to the bowels, and tonics, such as quinine.

Of the optical devices, perhaps the first employed in this condition was the pin-hole disk recommended by Travers,⁴¹ coupled with which it is advised to employ such measures as blistering and tonics. Hull⁴² reported benefit from an instrument made up of two lenses with an adjustment, the object glass large and convex; the eyeglass smaller and doubly concave; the entire arrangement being not unlike that of an opera glass. Abraham, an optician in Bartlet street, Bath, used a similar instrument with success and modified it by the use of an additional concave lens of small size fitted in an opaque circle wide enough to act as a diaphragm. Wharton Jones produced benefit by means of concave lenses in a number of instances, and a similar observation was made by Sir David Brewster.

To Nottingham we are indebted for much of the valuable information in regards to the early optical appliances used. He relates one case in which benefit was derived from wearing before the eye a piece of black wood, in form more or less like a walnut shell, perforated so as to leave a circular opening, beyond and around which a small nipple projected on the exterior, thus converting the hole into a very short tube standing on the outer surface of the shell of wood. The openings were made to one side of the center. This apparatus was used in combination with darkened double concave glasses for distance and concavo-convex cylinders for reading fine type.

Nottingham likewise devised an instrument for drawing the lids up and close on the eyeball for the relief of conical cornea, which may be described in his own words as follows: "It consists of a steel spring with a small round pad, a little larger than a sixpence, at the end of it, the pad lined with soft material being placed upon the temporal integument which has previously been drawn outward and backward by the fingers. A *point d'appui* is easily given to such a spring by allowing it to pass downward and forward toward the canthus, upon which it has to act, from another spring encircling the fore part of the head, in shape like a horseshoe and completed by an elastic band carried around the occiput, so as to form a kind of fixed and steady head-

band, upon one point of which, more or less near to the parietal prominence part of it, the end of the other may be riveted so as to permit a little forward or backward motion at the joint. A slight inclination upward of the outwardly drawn canthus has a tendency to improve the result.

Nottingham further recommends trying different forms of artificial iris such as the following:

1. The flat disk of blackened metal with a pupillary opening in the middle, so arranged that it may be readily centered with the pupil.

2. A similar disk of blackened metal with a transverse slit instead of a central foramen. They should be round to permit of turning of the axis of the slit.

3. The small black cup of ebony or other dark or hard and blackened wood, the concavity to be turned toward the eye, and with the pupillary aperture in the center.

4. The concavo-convex of wood eccentric foramina so that the pupillary aperture in the wood may be toward the inner side, thus favoring convergence of the two eyes; but at the same time, by turning, admitting of the aperture in either piece being more or less outwardly directed.

During the first half of the nineteenth century an American invention called "eye-cups" was much exploited as of value in altering the curvature of the cornea. Two eye-cups were employed, each consisting of a hollow sphere of India rubber, to which was connected a cup of hard wood, shaped like an egg-cup, the interior of the two communicating so that if the India rubber ball be first pressed and then the edge of the wooden cup be applied to the cheek, closed eyelids, or other part, the sudden expansion of the caoutchouc sphere permits rarefaction of any atmospheric air which is confined and induces suction. It was directed that for the first week the cup should be used every night for five minutes and afterward nightly for ten minutes. Mackenzie suggested the use of a deep concave lens with a movable diaphragm behind it attached by a hinge to the spectacle frame in which the lens is fixed. The diaphragm may have either a hole in the center or a narrow transverse slit.

Samuel H. Green suggested the application of some transparent animal jelly in a spherical capsule of glass in contact with the surface of the eye. He likewise suggested taking a mold of the cornea and impressing it upon some transparent medium. Both of these procedures have been found impracticable.

In an eye which existed for nearly twenty years I have failed to ob-

tain any marked improvement in these cases from any of the modes of treatment already mentioned, but the work of Nottingham has prompted me to further elaborate on the optical methods used by him so that I am able to report one case in which almost normal vision was acquired and maintained.

This patient had an elliptical portion of the cone removed by myself, but no marked improvement followed. A series of experiments extending over a period of several years were performed in an effort to adapt some form of disk that would permit rays of light to enter the eye through the least refractive portion of the cornea. The investigation began with a pinhole disk and stenopaic slit, and included the testing of every form of prism and patch until a satisfactory result was obtained. The conclusions reached were as follows:

1. That the character of the disk and its angle vary in each case.
2. That the intelligence of the patient is an indispensable adjunct in the selection of the necessary disk, as the method is almost entirely subjective.

3. That lenses in which the corneal area is screened by black patches of various sizes and shapes containing the requisite slits are better adapted for this purpose and are less noticeable than prisms or ground glasses.

4. That the refraction of the cornea varies from time to time, requiring frequent examinations with changing of the disks.

5. That the incorporation of the patches with the correcting lenses gives rise to an additional improvement.

6. That the only disadvantage lies in the fact that the patches do not correspond to the cornea during ocular movement, but this is compensated for by the marked improvement and comfort afforded when the eyes and disks are adjusted for some average range.

7. That a fair trial should be made with these disks before resorting to operative procedure.

In other cases this method has been employed with very gratifying results, but in this particular case vision was brought to 6/9 and 6/12, and work at close range was comparatively easy when a disk with a smaller aperture was employed.

The quotation, in part, of this patient's letter describing this procedure is as follows:

"Of these small black opaque disks, I find the one with the round opening to serve my purpose best, for distance as well as for reading, when used in front of the left eye. To this particular disk I have devoted much time and attention, having experimented with a num-

ner of different sized openings—round and otherwise—in order to find the ‘happy medium’ for all needs and requirements, and I know I have found it in this size. It serves me well on plane glass, and remarkably well when used in connection with the D D concave cylinders. So much for the left eye.

“Now, as regards the right or near-sighted eye of mine, I obtain the best results for this eye with the half-disk which has the small V cut into the center of same, for reading purposes, and at the same time answers quite well for distance, but then only in twilight and not otherwise. As you will notice, this latter, or V-shape, is a part of and has the same dimensions as the ‘triangle’ disk, and to which I have also given a great deal of attention and experimented with various sizes before finally deciding on this as being the best for the purpose—reading—and which I find especially so when used in conjunction with the 9 D cylinders.”

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SIMPLE GLAUCOMA IN THE YOUNG, WITH A REPORT OF TWO CASES.*

BY C. A. VEASEY, M. D., AND E. A. SHUMWAY, M. D.

PHILADELPHIA.

Illustrated.

Simple glaucoma in the young is a disease of comparatively infrequent occurrence. Priestley Smith, in his monograph "On the Pathology and Treatment of Glaucoma," states that the relative frequency before the twentieth year of age is less than one-tenth of 1 per cent, or, as he expresses it, less than one case in 1,000. The percentage gradually increases until the fifth and sixth decades, during which there are found about 58 per cent of all cases. From this period on the decline is very rapid, there being, approximately, but 9 per cent between the ages of seventy and eighty.

In 1889 Nettleship, in discussing the prognosis of simple glaucoma, stated that in nearly two-thirds of his cases occurring before the thirtieth year of age the eyes were myopic. Of his four cases observed before the twentieth year both eyes were affected in one and one eye only in three.

Among other cases observed before the twentieth year of age are those reported by Stellwag, Schirmer, Mooren, Gallenga, Randolph, Harlan, Brailey, Story and Ayers. Nearly all of the cases presented the ordinary symptoms found in simple glaucoma occurring in more advanced years, notably impairment of the vision, excavation of the discs and contraction of the visual fields. Many of the eyes were also myopic, some of them in a very high degree. In a few of the cases (for example those recorded by Harlan) a predisposing family history of glaucoma was present.

The two cases herewith presented belong to this class, the glaucoma beginning as early as the sixteenth year in each, and seem to possess a number of features of sufficient interest to merit their report.

*Read before the Section of Ophthalmology of the College of Physicians of Philadelphia, December 15, 1903.

CASE I. - A. B., an unmarried colored woman, was seen first in April, 1898. No family history of any ocular disease could be elicited. A grandmother, aged eighty-three, and a great aunt, aged ninety-one, were still living and possessed good vision. At sixteen years of age the patient had typhoid fever, during which there was an indefinite history of a mild attack of inflammation in both eyes. The patient is positive, however, that the vision of the right eye began to fail during convalescence from the attack of fever. There were at no time any inflammatory symptoms or pain. The vision gradually diminished until it was finally entirely lost when she was nineteen years of age, or about three years from the beginning of the disease. From this time on there were occasional attacks of severe pain, becoming more and more frequent, and located by her in the eyeball, temporal region and along the side of the head, and it was for relief from this condition that she sought advice. According to her statement she had been treated from time to time by her family physician without relief.

Examination showed a divergent strabismus of 45° with the left as the fixing eye. There were no inflammatory symptoms. The anterior chamber of the right eye was more shallow than that of the left. The left pupil reacted promptly to light, convergence and accommodation, but the right reacted only consensually. The vision of the right eye was entirely abolished; that of the left was 6/6, and with -0.1, 50 D, axis 90°, was increased to 6/5.

Ophthalmoscopic examination of the right eye revealed perfectly clear media and a complete excavation of the optic disc, the vessels dipping quite suddenly over the margin and the bottom of the excavation being observed best with -8 D, the macular region appearing practically emmetropic. No pulsation of the retinal arteries could be detected, but venous pulsation was marked. A slight increase of the intraocular tension was present.

Ophthalmoscopic examination of the left eye showed clear media, with a normal disc of healthy appearance. There was a small physiological cup and pulsating veins, the latter not being so marked, however, as in the right eye. The tension was normal.

The refractive error of the left eye was corrected and the glaucomatous eye treated for a year with miotics locally, and internally salicylate of sodium, bromides and the various analgesics. So long as the internal medication was being employed the pain was only moderate but as soon as its use was discontinued the pain reappeared as bad as ever. The patient became discouraged and melancholic so

that finally the eyeball was enucleated in April, 1899. The patient has been seen from time to time since the performance of the operation, the last examination having been made a few months ago, five years after the first examination and thirteen and a half years after the appearance of the disease, and the condition of the left eye has remained unchanged.

The specimen was prepared by Dr. E. A. Shumway, whose report is as follows:

The eyeball was fixed in formaline, hardened subsequently in alcohol, halved, and sections were cut in a plane parallel to the original section, after embedding in celloidin. These sections measure 26 mm. in the antero-posterior, and 24.5 mm. in the horizontal diameter at the equator. Macroscopically the anterior chamber is seen to be shallow at the center, the lens appears very large, and the head of the optic nerve is deeply excavated.

Microscopically the cornea is normal, except for a moderate oedema of its anterior portion, which is shown by the presence of fine lines separating the basal cells of the epithelium, and by the undue prominence of the neural canals which pass through Bowman's membrane. The epithelium attracts attention because of the remarkable pigmentation of the cells at and beyond the corneal limbus, which may possibly be explained by the fact that the patient is a negress. This pigmentation may be traced in individual cells for some distance within the limbus, and is present to a striking degree throughout the entire eyeball.

The iris is covered by a dense pigment line on its anterior surface, which is as broad as that on its posterior surface, while the stroma is composed of a meshwork of coarse pigmented cells, with heavy processes very different from the delicate stroma cells of the ordinary iris. This pigmentation extends also between the bundles of the ciliary muscle, a position in which pigment is rarely found, and is deposited in considerable quantity around the loose meshed tissue between the canal of Schlemm and the angle of the anterior chamber. This unusual condition has been described at some length because of the fact that excessive pigmentation has been mentioned as a possible cause of the blocking of the angle of the anterior chamber in glaucoma by Panas and Rochon-Duvigneaud, v. Hippel, Priestley Smith and Dolganoff, and while, in their cases the deposit was considered to be pathological, it is not difficult to understand that such a pigment massing, though possibly physiological in character, might be a contributory factor in preventing the ready outflow of fluid through the angle of the chamber.

The anterior chamber is shallow and some of the sections show an adhesion between the iris and cornea, in advance of Schlemm's canal, although in most of them, the angle is free.

The lens is unusually large, being 4.4254 mm. in its antero-posterior and 8.1125 mm. in its equatorial diameter. Measurements of sections of ten other eyes, with normal anterior halves, which were hardened in formaline and alcohol, in the same manner as this, gave a mean antero-posterior diameter of 3.1891 mm. and an equatorial diameter of 7.1061 mm.—in other words a difference of 1.2363 mm. in the antero-posterior and 1.0064 mm. in the equatorial diameter.

The transverse diameter of the cornea, taken at the level of the insertion of the iris into the ciliary body, internally was 11 mm., practically the same as in all of the other eyes. So that the lens in this case is relatively much larger and leaves a narrower space between its edge and the margin of the ciliary processes. The lens shows just commencing cataractous change.

The choroid is greatly thinned, and is composed in places of a narrow band of tissue between two broad pigment lines, the inner one representing the line of pigment cells of the retina.

The retina is artificially detached from the choroid; its structure is well preserved, but the ganglion cells have undergone decided degenerative changes. Anteriorly there are large cystic spaces, and posteriorly the molecular layers contain many small empty cavities, between the fibres of the supporting tissue.

The head of the optic nerve is occupied by an excavation 2.655 mm. in depth, which extends to the outer level of the sclera—in fact to the limits of the nerve tissue in the section, as the nerve is severed close to the eyeball. The blood vessels are displaced to the nasal side, and the kettle shaped excavation is crossed by several bands of connective tissue. On either side of the cavity the nerve bundles have completely disappeared, leaving the glial tissue, as a fine, fibrillar network, with wide, empty meshes.

The pathological examination, therefore, confirms the clinical diagnosis of primary glaucoma, with an unusually deep excavation of the optic nerve. The interesting conditions are the great size of the lens, which, according to Priestley Smith is one of the chief factors in the causation of glaucoma and the extraordinary pigmentation of the eye, especially in the neighborhood of the iris angle.

CASE 2.—C. N., an electrician aged nineteen years, a former pupil of Girard College, presented himself at the eye dispensary of

the Jefferson Hospital on July 12, 1902, complaining of gradually failing vision, which was first observed three years before, when in his sixteenth year of age. During this period he had received three months' treatment at another hospital and at the time of the examination was wearing concave lenses prescribed by an optician. The vision of the right eye, without glasses equaled 6/200; of the left, 15/100. With the following correction, O. D.—S 7.00 D \ominus —c 1.25 D, axis 150° and O. S.—S 3.50 D, \ominus —c 1.00 D, axis 135°, vision was improved to 20/20 and 20/40 respectively. The ocular conjunctivæ were slightly injected. The right pupil reacted somewhat sluggishly and the left promptly. Tension was increased in each eye, being about +1.

There is a distinct family history of myopia. Regarding the grandparents' eyes no history could be obtained. The parents used glasses in late life for near work only and were therefore probably not myopic. Of the nine children, consisting of five boys and four girls, only two are not myopic, one boy and one girl. In one sister the myopia has progressed so far as to produce intra-ocular changes, including cataract in one eye, an unsuccessful attempt to remove the latter several years ago having been followed by blindness. In none of the children, however, excepting the patient, have any glaucomatous symptoms been observed.

Ophthalmoscopic examination of the right eye showed clear media, a somewhat disturbed choroid without any distinct inflammatory patches, and a typical glaucomatous excavation of the optic disc surrounded by the usual ring of atrophic choroid. The vessels disappeared suddenly over the disc margin and were crowded toward the nasal edge. The bottom of the cup presented a somewhat greenish sheen best observed with a —S 16. D lens.

Ophthalmoscopic examination of the left eye showed clear media, and an oval disc with a large physiological cup. The refraction, as previously stated, was myopic.

The visual fields taken three days later (Fig. 1) show that of the right eye to be almost lost, there remaining only a small upper temporal portion which, however, included the fixation point. The left field was very slightly contracted concentrically.

The patient was given a solution of eserine for local use and strychnia for internal use, but after a few days' treatment passed from observation and was not seen again until May 27, 1903, ten months later. At this time the vision of the right eye was reduced to light perception in a very small field (Fig. 2) and that of the

left eye equalled, with glasses, 20/50, the field being somewhat more contracted than at the previous examination. The excavation of the right optic disc had increased in extent and that of the left, which had been deemed previously to be physiological, was now distinctly pathological, much larger in size, extending to the disc margin, the vessels dipping suddenly over its edge and being crowded toward the nasal side. Congestion of the ocular conjunctiva was more marked and tension was $+4$ in each eye. The myopia of the left eye had also increased from 5.50 D. to 9. D.

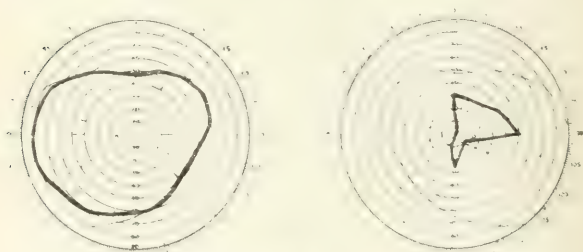


Fig. I.

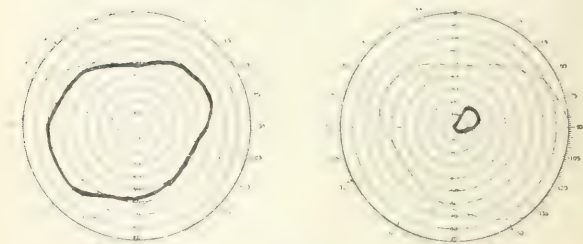


Fig. II.

For six weeks internal and local treatment were employed faithfully in spite of which the condition became gradually worse, tension increased to $+2$ and a ciliary staphyloma began to form in each eye. On July 9, 1903, the patient's consent being obtained finally, with the assistance of Dr. J. C. Knipe, a broad, peripheral iridectomy was performed on each eye without complication. The tension was immediately reduced and healing was normal. The vis-

ual field of the left eye became slightly larger (Figs. 3 and 4) and this condition has been maintained. The vision with the correcting lens,—S 9.00 D, C — 1.00 D, axis 90°, equals 6/15, and Jaeger 4 is easily read.

The points of interest in the first case are that the glaucoma began in the sixteenth year and rapidly progressed to total blindness in the nineteenth year, followed by pain and enucleation, and no appearance in the other eye thirteen and a half years later. Microscopically, the large size of the lens and the accumulation of pigment in the neighborhood of the angle of the anterior chamber are of interest, as these conditions have been reported previously to have been instrumental in the production of the disease.



Fig. III.
Before operation.

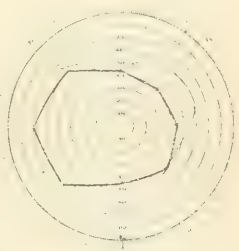


Fig. IV.
After operation.

The interesting features of the second case are the family history of myopia, including the patient in whom the disease was mildly progressive, the age of the patient, the progress of the affection, and its apparent check by iridectomy. It will be noted, also, that in neither eye was there a posterior staphyloma, though shortly before operation distinct beginning ciliary staphyloma was observed in each. It is certainly interesting to speculate from this whether the stretching of the eyeball and the consequent pressure upon the angle of the anterior chamber because of the changes in the ciliary region did not produce secondarily, according to the theory of Weber, the closure of that angle; in other words, whether the closure of the angle was due to pressure, according to the theory of Weber, or to adhesive inflammation of the iris periphery, according to the theory of Knies. It would seem, from a study of the clinical history, to have been the former in this case.

OPHTHALMIC MEMORANDA.*

BY G. L. DE SCHWEINTZ, A. M., M. D.,
PHILADELPHIA.

Illustrated

Case I. Symmetrical Dislocation of the Crystalline Lenses into the Pupil Areas. R. C., a Hebrew girl, aged six and a half years, born in this country, was recommended to me by Dr. George Rohrer, and presented herself for examination on June 16, 1903.

History.—The child's parents are living and have good eyesight. Five children, four girls and one boy, compose the family. Their physical condition is good and their eyes, except for ordinary refractive errors, are normal.

When this patient was very young she was "sickly" and had convulsions. Two weeks prior to her visit she contracted a fever, the nature of which is not known, and it is said that during its continuance the ocular conditions presently to be described developed.

Examination.—The child is under developed, pallid, and has the cranial characteristics of rachitis. The central teeth are small, brown, and have slightly ridged surfaces, and one lower incisor has an extremely serrated edge.

Ocular Examination. The conjunctivas were slightly catarrhal and there was much photophobia, rendering it impossible to determine with anything like accuracy the visual acuity. The patient acted like a high myope.

Each crystalline lens was dislocated forward and occupied the center of each widely dilated pupil area, precisely as a flat cork would be fitted through one-half of its depth into a circular aperture. In other words, each lens was so placed in the center of the widely dilated pupil that the margin of the iris encircled its equator; a zone less than a millimeter in width existing between the edges of the lenses and the borders of the irides. The appearances are shown in the accompanying illustration by Miss Washington, drawn under oblique illumination (Fig. 1). By transmitted light the center of each lens presented a mottled dark area with slightly serrated border, surrounded by a red reflex through the lens periphery, with the rim previously described beyond (Fig. 2.). In the left eye the cornea was slightly hazy and there was a small central, circular area of grayish opacity.

With the indirect image the fundus could be studied, but with difficulty. Each optic disk was a vertical oval, rather grayish-red in

* Read before the Section of Ophthalmology of the College of Physicians, Philadelphia.¹

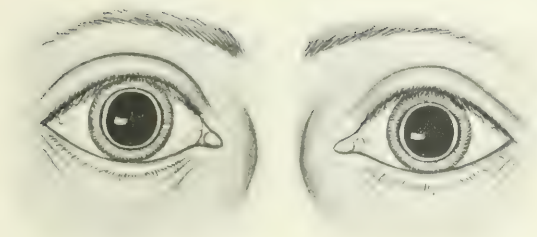


Fig. I.

Symmetrical dislocation of the crystalline lenses into the pupil area;
oblique illumination.

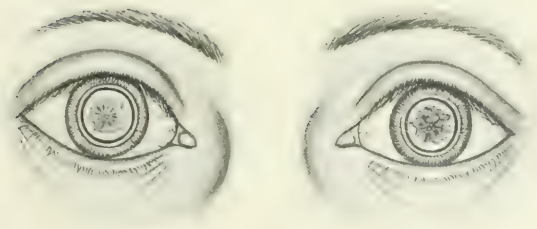


Fig. II.

Symmetrical dislocation of the crystalline lenses into the pupil area;
transmitted illumination.

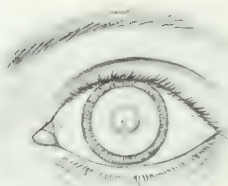


Fig. III.
Posterior lenticonus.

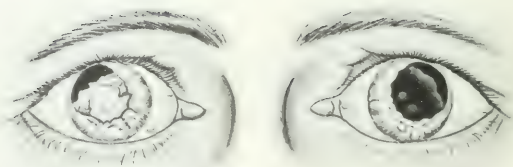


Fig. IV.
Bilateral dislocation of lens, upward and outward.

color. There was no conus or posterior staphyloma, and the general fundus of each eye gave no sign of coarse ophthalmoscopic change, except some absorption of the retinal pigmented epithelium. The usual methods of examination determined the presence of high myopia; the exact degree was not—indeed, could not—be ascertained. The tension of the right eye was normal; of the left eye elevated, about + 2, and the photophobia of this eye more marked than its fellow. Under appropriate treatment the conjunctivitis, photophobia, and to some extent the elevation of tension, disappeared. The patient was admitted to the University Hospital, and on July 24 the left lens was needled, its consistence being almost like that of rubber. Although the needle was made to traverse the lens several times, there was no reaction and no notable change in its transparency occurred. No further operation has been performed, and when last seen, about a month ago, the condition was the same as originally described.

Remarks.—While it is well known that the crystalline lens may be, as Dr. Noyes has expressed it, pushed slightly out of place in any direction, I have not, prior to my examination of this child, encountered an exactly similar condition, nor had Dr. S. D. Risley and Dr. Robert Randolph, who also saw this patient. If the history is correct, it represents a type of partial luxation of the crystalline lenses into the pupil areas, occurring in a rachitic child with highly, probably congenitally, myopic eyes. It is intended later to attempt the extraction of these lenses, as the discission was negative in its action.

Case II. Posterior Lenticonus of the Left Eye.—M. F., an American girl, aged eleven years, came to the Eye Dispensary of the Hospital of the University of Pennsylvania July 16, 1903, because of eye-tire, frontal headache and photophobia.

History.—The child's parents are living and healthy and have good eyesight. She is one of seven children, who, as far as is known, have no ocular disease. The patient herself is a normal child, and except for the usual illnesses incident to her age has always been in good physical condition.

Ocular Examination.—The vision of the right eye is 6/15 without correction. The ophthalmometer reveals a corneal astigmatism of between 6 and 7 diopters, with its axis at 85 degrees, according to the rule. The refraction is hyperopic, the media clear and the fundus healthy. The vision of the left eye, without correction, is 6/22, the corneal astigmatism 6 diopters, according to the rule, axis 90. Ophthalmoscopically, a slightly cone-shaped, or, perhaps, more accurately, a globular protuberance is visible on the posterior surface of the lens, transparent like the rest of the crystalline body, except for one small

spot, which is dark gray in color, and which may represent the vestigial remains of the hyaloid artery at its lenticular attachment. The appearance is somewhat that of a drop of oil on the surface of water—a simile made use of by Knapp. Examined with the plane mirror through the correcting glass, which with the shadow test proved to be $+2\text{ D } \subset -5^{\circ}$ axis 90, two crescentic areas of light were visible which played over the cone, their movement being against that of a dark shadow in the central part. Examinations indicated that the refraction through the cone was myopic to the extent of 15 D. Through the periphery of the lens the refraction was hyperopic to the degree already mentioned. The accompanying sketch gives the appearance by transmitted light (Fig. 3).

Remarks.—Posterior lenticonus, now many times reported, is usually ascribed to an abnormal curvature of the posterior surface of the lens, or to an abnormal arrangement of the lens-fibres and to an anomaly of its nucleus. Most of the investigations of lenticonus have been made on animals' (rabbits, pigs) eyes. Recently Pergens found in an eye enucleated for glaucoma posterior lenticonus. The nucleus was displaced backward.

Case III. Bilateral Coloboma of the Iris, Upward and Outward.—Patrick M., an Irish laborer, aged forty, came to the Eye Dispensary of the University Hospital September 10, 1903.

History.—There is nothing of importance in the patient's personal or family history. His ocular defects have existed from birth; whether similar defects existed in the eyes of his parents or of any of his ancestors was not ascertained. He has a large family, but has not, as far as is known, transmitted to them any like condition. His right eye was injured by a blow two years ago, which caused cataract.

Ocular Examination.—Vision of the right eye is light perception. There is a large coloboma up and out, extending to the ciliary border, its free margin comprising one-fifth of the iris-circumference. The lens is cataractous and chalky. Fundus view is not possible. Vision of the left eye is $4/45$, without correction. An exactly similar total coloboma exists. The iris is slightly tremulous, the margin of the lens, which is clear, is plainly visible and the lenticular body evidently in part separated from its attachment to the ciliary processes, especially upward and outward (Fig. 4). The refraction through the lens is $+1.5^{\text{sph}} \subset +3.5^{\circ}$ axis 70. With this glass vision rises to $6/22$. The fundus is clearly visible. The nerve head is a vertical oval, rather too red. There is no conus or other defect in the choroid.

Remarks.—As is well known, typical iris-coloboma is usually placed downward and slightly inward. Numerous atypical forms have

been recorded, which according to E. von Hippel's researches (Graefe u. Saemisch, *Handbuch der Gesamten Augenheilkunde*, Zweite Auflage, Lief. 18 u. 19, p. 11) have been found in the following situations: Outward, inward, upward, down and out, up and in, and up and out. To the last named category the present instance belongs. In comparatively modern literature (consult von Hippel, *Loc. cit.*) similar cases have been recorded by Theobald, Fage, Bock, Pfannmüller and Gillivray. According to Bock (*Die Augsbornen Kolo-bome des Augenapfels*, Wien, 1893, p. 82) among twenty-nine examples of atypical or so-called pseudo-coloboma, the position of the defect was found inward eleven times, in and up six times, upward four times, out and up five times, outward nine times, and down and out four times.

Referring to the explanation of coloboma of the iris, Lang and E. Treacher Collins (*System of Diseases of the Eye*, edited by Norris and Oliver, Vol I, p. 443) have thus written: "Coloboma of the iris is not due, as some have supposed, to an unclosed foetal fissure in that structure. The iris is not developed in two sectors, and the normal foetal iris never has any cleft; it grows as a prolongation forward from the ciliary body—not, however, commencing until the two edges of the foetal fissure in that structure and in the choroid have become united. Should the cleft in the ciliary body remain unclosed, or should the closure be delayed, then either no iris would be formed in the position of the cleft, or the time for the development of the iris in that position would be shortened and it would not attain its normal length.

To this explanation it may be objected that it is difficult to see why the defect should sometimes be situated in the upper part of the iris, the foetal cleft being below. Pflüger suggested that in these cases some rotation of the eye occurred during foetal life. Makrocki supposes the choroidal fissure to be abnormally placed.

Neither of these hypotheses would explain the existence of two colobomata in one eye, or of a horizontal coloboma of the iris with the same defect in the choroid at right angles to it.

It has been suggested that irideremia is due to an abnormal adhesion or late separation of the lens and cornea. Should this adhesion or late separation, instead of involving in the cases of iridderemia the whole surface of the lens, involve only a portion of its area, then the iris would be prevented from developing there, but would be formed in the normal way in the rest of its circumference. In this manner a coloboma of the iris might occur in any position, and even two might be formed in the same eye."

REPORTS OF SOCIETIES.

SECTION OF OPHTHALMOLOGY.

COLLEGE OF PHYSICIANS OF PHILADELPHIA

Meeting, December 15, 1903. Dr. S. D. Risley, Chairman, presiding.

Dr. Charles A. Oliver read the history of a *Case Illustrating the Inadequacies of the Present Methods for the Recognition of Distant Color Signals*, with a series of brief plans for remedying the same. The subject, a healthy 38-year-old man, suffering from a minor degree attack of retrobulbar neuritis from tobacco, personally experienced such a shock from a falsely interpreted color signal which involved the protection of much life and property that he demanded an examination of his color sense. Having successfully passed the wool and miniature lantern tests at one and six meters' distance, and finding that his imperfection persisted, he requested an expert examination. Dr. Oliver was summoned, and conducted a series of examinations with carefully prepared colors both as to exact tint, degree of saturation, and relative size, at the place in which the fault was recognized, and at various safe distances which were compatible with the character of employment. The man's visual fault—a faint central scotoma, for red, green, blue, yellow and white—was discovered and successfully demonstrated before an official jury. As a reward for the patient's honesty he was removed from his hazardous post to a more remunerative and not at all dangerous one.

Dr. Oliver stated briefly the best preventives for the admission of such cases to active duty in positions of such unusual delicate color-differentiation. He arranged his thoughts in regard to the best plans for the discovery and removal of such subjects as follows:

“(1) The methods for color-testing at present pursued in railway, army, navy and marine service are inefficient for the detection of many cases of low degrees of subnormal color-perception; a type which necessarily constitutes the most dangerous and the least suspected class of subjects. (2) Every candidate for color-testing, no matter in what capacity he may be employed, should be medically proved to be free from injurious habits, systemic disturbance, and ocular disease, before any such tests are applied. (3) Accurate notes of the character and degree of color-sense, which may be obtained in duplicate by any authorized management, should be kept and added

to at regular intervals. (4) All testing for color should be conducted in the very situations which are occupied by the subjects during work. (5) The test colors must be placed at the distances which are employed during signalling. (6) The testing must be performed during the various stresses of weather to which the candidates are subjected while on duty. (7) The tests must be made during the times of day and with the illuminating exposures that are used by the candidates in their daily employment. (8) All testing should be done with adaptations of the materials that are to be gazed at by the candidates in their regular work. (9) All of the test colors must be kept at uniform standards of relative distinctness, saturation and brightness for the distances ordinarily used: for example, there should be a series of 300-meter-colors, 500-meter-colors, 1,000-meter-colors, etc., for both daylight and artificial illumination."

Drs. C. A. Veasey and E. A. Shumway read a paper on *Simple Glaucoma in the Young*, with a report of two cases, one of which was exhibited. The first case was a young woman in whom the glaucoma began in one eye in the sixteenth year of age, progressing to total blindness of the eye in the nineteenth year and followed by severe pains requiring enucleation. Microscopically the lens was very large, and accumulations of pigment cells were found in the neighborhood of Schlemm's canal. No sign of the disease has appeared in the other eye thirteen and one-half years later. The second case was a boy with a family history of myopia, including himself, in whom it was progressive. The glaucoma began in one eye in the sixteenth year of age, and in the other about two years later. Vision had been lost in one eye, and the field was rapidly contracting in the other, ciliary staphyloma forming and tension being +2, when iridectomies checked the further progress.

Discussion.—Dr. Randall remarked that he had often noted in glaucomatous eyes the pigmented cells in the region of Schlemm's canal, as pointed out by Dr. Shumway, even when not markedly pigmented in general. He had satisfied himself that this had not been artificially produced in the section-cutting. In one case of juvenile glaucoma from a 12-year-old white girl which he had pathologically studied in Vienna, the axial length was 27 mm. and the lens more than 7 mm. in diameter; but the cornea was 13 mm. or more and the circumlental space fairly broad. The iris was atrophied to the mere pigment layer at the angle and some pigment cells were present about Schlemm's canal. He believed that every eye with juvenile glaucoma showed myopic distention, but in a less

degree than the lophthalmos cases. Dr. Posey said that in a clinical study of 167 cases of glaucoma simplex made by him and Dr. Zentmayer in 1895, but one case was noted as occurring before 20 years of age, this patient being 13 years old. Six occurred between 25 and 35 years; two of these were 26 years old. From these figures, as well as from his observations elsewhere, Dr. Posey was convinced that simple glaucoma was exceedingly rare in young subjects. He had seen several cases of nonocular glaucoma, of a more or less subacute type, which were probably dependent upon a uveitis, and as such were to be considered as falling under the category of secondary glaucoma.⁴

Dr. Wm. T. Shoemaker reported a case of *Obstruction in the Central Retinal Artery* which he believes to be a thrombus situated laterally in the central artery at or near the bifurcation, and passing into the lower branch. Alterations in the blood-current, changes in the blood-vessels, and changes in the blood are the three factors in thrombosis which he endeavors to establish in the case. The pulse-rate was 63, the bifurcation with its probable variations, as shown by the vessels in the fundus, was advanced in support of the second factor. There were no changes in the blood. The conditions favoring a separation of fibrin from the blood-plasma and the formation of a white thrombus, as described by Ludwig Gutschy, were present. There was a variation in the arrangement of the vessels which probably had something to do with the retention of rather better central vision than these cases generally have.

The general treatment of such cases is directed against all the contributory causes of thrombosis which can be shown to exist. In the local treatment, which must be immediate, pressure massage is irrational and should not be tried. It gives opportunity for the obstruction to become further fortified, by stopping what flow of blood might still remain, and aiding thus in the thrombic process. The indication is to increase the rapidity of the heart action, and dilate the peripheral circulation. Nitroglycerin or nitrate of amyl, or, better still, forced muscular exertion, such as running or climbing stairs, hypodermoclysis, and the intravenous injection of salt solution are to be considered.

Dr. James Thorington described a case of *Plugging of the Lower Temporal Artery* in a young married woman who showed no evidence of systemic disease to account for the ocular condition. Rest in bed, pilocarpin sweating, and internal administration of the iodids resulted in a gradual lessening of the scotoma and ultimate disappear-

ance of the thrombus and complete recovery of vision in the affected area.

Temporal Hemianopsia with Skiagraphic Examination Indicating the Position of the Supposed Lesion. Dr. G. E. de Schweinitz detailed the history of a man, aged 34, who seven years prior to his examination noted failure of vision in the form of loss of the temporal field of each eye. The history was largely negative except that his head had been injured by a fall from a horse, this fall, however, having taken place at least twelve years before his visual defects became apparent. Specific history was lacking. At the examination atrophy of both optic nerves was evident and on the left side there was complete blindness; on the right side typical temporal hemianopsia with full extent of the preserved temporal field and marked contraction of the color fields. The light sense, however, was preserved except in so far as the upper and outer temporal quadrant of the field was concerned. Skiagraphic examination by Dr. Henry Pancoast revealed a shadow just in the region of the chiasm, which was interpreted by the skiagrapher as indicating a growth or possibly an exostosis. The hemiopic pupillary inaction could not be demonstrated.

Discussion.—Dr. William Zentmayer cited a case of temporal hemianopsia in a woman, aged 40, the affection occurring twelve years ago without traceable cause. The optic disks show no evidence of atrophy, and vision during this period has remained unchanged, equaling 5/15. Dr. Posey referred to a case of a woman 50 years of age, who, when first seen, presented the signs of a right temporal homonymous hemianopsia. V. OS, 5/40; OD, 6/6. At the end of a month vision in the left eye had sunk to 1/60, and the field was limited to a small sector above. There was also a progressive loss of central vision and of the nasal field in the right eye. There were no other symptoms of involvement of the nervous system. The patient died in about two years after the first manifestations of visual difficulty of an aneurysm seated at the point of origin of the anterior cerebral artery and the communicating branch of the circle of Willis, which had caused pressure of the left tract and optic nerve and chiasm. Dr. Veasey stated that he had now under observation a man with temporal hemianopsia, the defective portion of the field showing variations in extent, for a time progressing and then receding. The eye-grounds were normal, and no other evidence of intracranial lesion could be demonstrated. Dr. Harlan said that bitemporal hemianopsia must be rare, as he could recall having seen only three cases. One,

a sailor, returning from a malarial region, entirely recovered the lost fields under large doses of quinin. The second case was that of a healthy woman who complained of decreasing vision in the temporal field of one eye, the defect in two years reaching the median line. The other eye then became similarly affected, and the defect in the field also reached the median line and stopped. Death ultimately occurred with symptoms of meningitis. In another case a healthy man with normal eye-grounds had decided bitemporal foggi-ness. Dr. Risley saw a healthy young woman in whom bitemporal hemianopsia followed a severe parturition. There was decided pale-ness of the disks and threatened atrophy, but under ascending doses of the iodids and m  rcury the condition improved. Vision was almost normal.

Dr. Sweet, in referring to the skiagraph of the case, said that the shadow in the region of the chiasm was not to be found in nega-tives made of normal brain tissue, and it was, therefore, probable that the dark area of the picture indicated some neoplasm in this situation. He did not believe that much reliance could be placed upon the X-rays in the diagnosis of brain tumors, and cited several cases of negative results in which large growths were found at autopsy. In a few instances, however, skiagraphic examination has shown the presence of a tumor of the brain, and the diagnosis was subsequently verified at death.

Drs. G. E. de Schweinitz and E. A. Shumway reported two cases, with microscopic examination of the eyeballs:

CASE 1. *Hyaline Masses in Corneal Scar Tissue*.—The patient, a male aged 30, had keratitis as a complication of scarlet fever when 2 years of age, which resulted in anterior phthisis with ad-herent leucoma. Microscopically the following conditions were found: Adherent leucoma, atrophy of the ciliary bodies and of the essential nervous elements of the retina and optic nerves. The surface of the corneal epithelium was irregular and thickened, Bowman's mem-brane was destroyed, and beneath the epithelium there was an extensive deposit of lime salts in the form of fine grains. In con-nection with this there was a remarkable deposit of irregular globules, yellow in color, varying in size from tiny droplets to globules 0.1 mm. in diameter, situated chiefly in the anterior portion of the cornea beneath the epithelium. These deposits remained unstained with hematoxylin, but with Van Gieson's method they assumed a still more brilliant yellow color. With Weigert's fibrin method they became dark blue and the larger ones assumed a purple hue. A test

for iron was negative, showing that if the substance was originally derived from the blood, there was at present no trace of hemosiderin in it. This condition has been variously described under the name of hyaline, colloid and amyloid degeneration of the cornea, and does not differ from other cases like it except in the unusual extent of the deposit. The literature of the subject was fully reviewed.

CASE 2. *Chronic Chorioretinitis and Extensive Pigmentary Degeneration of the Retina.*—A patient, aged 69, was admitted to the medical wards of the University Hospital on account of carcinoma of the stomach and gave the history of having been blind from birth. Unfortunately, ophthalmoscopic examination was not made and the eyes were obtained after his death. The choroid was atrophic, the retina adherent to the choroid, and its usual structure obliterated. Practically all of its cells had disappeared and were represented by a tissue composed of cells with branching processes, evidently the proliferated glial cells of its sustentacular tissue. There was extensive pigmentary degeneration of the retina which was distributed almost exclusively along the course of the retinal vessels, which in so far as the larger vessels were concerned had greatly thickened walls with hyaline degeneration. The pigment was deposited in the adventitia, in the perivascular lymph-spaces, and within the lumen of the vessels. In brief, the picture was a typical one of chronic chorioretinitis, atrophy and secondary pigmentation of the retina, atrophy of the optic nerves, and cataract due to interference with the nutrition of the lens. The paper was illustrated with microscopic sections of the diseased eyes.

Dr. H. F. Hansell spoke of the *Hallucinations* (or, more properly, the "Mockeries") of *Vision* dependent upon ocular disease, and called attention to the distinction that should be drawn between them and the hallucinations of disease of the brain. He described the mockeries due to errors of refraction, muscular paralysis, opacities of the media and disease of the retina, choroid and optic nerve. As an illustration of the well-known fact that peripheral irritation may give rise to mental symptoms simulating the insanity of mental disease, the following case was recorded. In the spring of 1902 Dr. Hansell was requested to see a young woman patient in the insane wards of the Philadelphia Hospital. Her parents stated that she had been born blind and had received her education in a blind asylum. She had displayed evidence of average intelligence and upon completion of her course had been placed in charge of the training of children in the school. This position after some years she had been obliged to relinquish on

account of violent pain in the head and delusional insanity. She became unmanageable and was removed to the Philadelphia Hospital. Her constant and unvarying delusion was that her room was on fire and everything before her was enveloped in a bright red glare. The patient also appeared to be in great pain. Both eyes were tender to the touch, sightless and atrophic. In order to relieve the possible ocular source of her delusion both eyes were enucleated. The girl gradually became more quiet until in a few days after operation her mind regained its former clearness, and all delusions vanished. In a short time she resumed her occupation of teaching.

Discussion. Dr. de Schweinitz referred to a woman, past 50 years of age, with absolute glaucoma who believed she was in a sea of red fire. There was only temporary cessation of the sensations following double iridectomy. Dr. Risley had tried enucleation of first one and then the other eye in a case of absolute glaucoma with hallucinations of red fire without favorable results. Dr. Harlan mentioned the case of a man who saw constantly before him the red glare of a furnace. The patient said he preferred this to absolute darkness.

WILLIAM M. SWEET, M. D., *Clerk of Section.*

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Thursday, December 10, 1903.

CLINICAL EVENING.

John Tweedy, F. R. C. S., president, in the chair.

Mr. N. C. Ridley showed a case of *arteric-venous aneurism of the Orbit*, recurring six months after ligature of the common carotid.

The patient was first seen in December, 1901, with paralysis of the sixth nerve following a fall on the head. In April, 1902, the left eye began to protrude, the pupil to dilate and the vision to fail. Iodide was given, but without any effect. In March, 1903, pulsation was first noticed with a thrill. On April 8, 1903, the left common carotid was ligatured in the usual situation above the omo-hyoid. The result was the immediate cessation of the pulsation and symptoms. On July 28 faint pulsation was again felt, but there was no proptosis nor other symptoms and the vision was 6/36. Now, in December, the pulsation and thrill are both very marked. The patient is, however, very much relieved since the operation.

The cause of the condition is probably a fracture of the skull

with injury to the sixth nerve and a lesion causing a communication between the cavernous sinus and carotid artery.

Another case of the same nature was shown by Mr. Pritchard, and in this case the carotid artery had been tied by Mr. Silcock. The symptoms had, however, recurred in spite of their complete cessation immediately after the operation.

Mr. Johnson Taylor mentioned a case in which he ligatured the common carotid artery two and one-half years ago and it has not yet recurred.

Mr. Adams Frost related a case caused by a man shooting himself through the mouth. A typical arterio-venous aneurism was caused, and through injury to the fifth nerve the cornea became ulcerated.

Mr. Hartridge gave details of another case.

Mr. Brewerton thought that owing to the free communication between the branches of the two external carotid arteries it would be much better to ligature the internal carotid artery.

Mr. Fleming had seen two cases, one of those recurred, and the other never derived any benefit at all from the operation.

Mr. Collins had seen a case temporarily benefited by ligature of the common carotid.

Mr. Fisher thought that the result of ligature of the artery must be doubtful, as it probably depended upon the size of the communicating arteries in the circle of Willis far more than upon the communications of the branches of the external carotid. For this reason he thought it unlikely that ligature of the internal carotid would be better than ligature of the common carotid, to say nothing of the much greater difficulties of the operation.

Mr. Nettleship had seen a case that had been under Mr. Hulke's care, and here also ligature of the artery failed to cure the condition.

Mr. Ridley in reply said that he did not think that ligature of the internal carotid would be any more likely to cure the condition than the operation on the common carotid. If he did anything more to his patient he should feel inclined to clear out the orbit; but in this case, as apparently in most of the others mentioned, the patient had derived much relief, although the condition could not be said to be cured.

Mr. Percy Flemming showed the drawing of a *fundus with marked arterial degeneration*. The patient was a woman aged forty-eight, with granular kidney. She died of apoplexy a few weeks after the drawing was made. During life the arteries had a typical

sclerosed appearance with "silver-wire" lines along them. There was venous obstruction at the points where they crossed the veins. There were also hemorrhages in the retina. Microscopic sections were shown of the retina with photo-micrographs; there was enormous thickening of the vessels.

Mr. Marcus Gunn also showed *sections of "silver-wire"* of the retina from another similar case.

In the discussion which followed as to the cause of the apparent constriction of the veins by the arteries of the retina Messrs. Marcus Gunn, Adams Frost, Doyne, Nettleship and Silcock took part.

Mr. Doyne showed a woman aged fifty-four showing somewhat similar ophthalmoscopic appearances as the drawing shown by Mr. Flemming. The urine was healthy, but the radial arteries were thickened.

Mr. Doyne also showed a case of *retinal effusion* in a patient aged sixty-five, whose sight had recently failed. There was no history of syphilis, but years ago he had had gonorrhoea.

In the right fundus were discrete patches of fluffy whitish exudation, especially near the disk; some vessels were concealed by it. There was no obvious disease of the blood vessels. The disk was clear and there were some pigment spots on the anterior capsule. Pigment spots were also seen on the capsule of the left lens. The effusion had extended since it was first seen.

Mr. William Anderson described and showed a case of *pemphigus of the conjunctiva of both eyes*. The patient was a woman aged twenty-nine, who had always enjoyed good health until a sudden febrile attack four months ago. There was a general rash, becoming vesicular. The eyes were dim and the lids were closed for about four days, when adhesions were seen to have formed between the lids and the eyeballs. There was also a severe superficial ulcerative stomatitis. After a time there was complete desquamation, with shedding of the nails of the hands and feet. The skin of the arms, chest, back and legs is still covered with patches of dark brown pigmentation. In the right eye the lids are thickened and the lower cul-de-sac is nearly obliterated. The upper one is free in its middle third. There is also a muco-purulent discharge, but the cornea is clear. In the region of the lachrymal gland is a large retention cyst. Vision 6/18. The right eye is in a somewhat similar condition, with vesicles in the lower fornix. Vision is 6/24.

Mr. Holmes Spicer showed *A Case of Hereditary Nodular Opacities of the Cornea* with drawings. It is a family disease though

probably not congenital. Fuchs described one case in which he removed a portion of the cornea for examination. He found the cornea softened and Bowman's membrane absent. The deposit which is amorphous lies in the substantia propria. One observer described urate of soda as the deposit but Mr. Spicer doubted the accuracy of this observation. The condition is progressive and here the father and daughter were affected. Mr. Johnson Taylor described a somewhat similar condition that he had seen in puppies, it was thought to be due to malnutrition. Mr. Spicer said that Fuchs had also seen this condition in dogs.

Mr. A. H. P. Dawnay showed an infant suffering from *Unilateral Anophthalmos*. The child was very feeble and delicate and without an anesthetic it was impossible to say if a rudimentary eye existed.

Mr. Tweedy commented on the error of term used in describing this case. He stated that the child was "anophthalmos" and the condition present should be termed "anophthalmia."

C. DEVEREUX MARSHALL, F. R. C. S.

COLORADO OPHTHALMOLOGICAL SOCIETY.

Meeting in Colorado Springs, December 19, 1903.

Dr. E. R. Neeper presented a case of *double conical cornea and another case of opaque nerve fibres* in one eye only, the optic nerve showing a very deep overhanging edge, entirely physiological.

CASE 1.—Dr. G. R. Libby showed a child of two years and a half, who on November 27, 1903, had received a cut from broken glass producing an incised wound of cornea from margin of a contracted pupil downward and outward extending 2.5 mm. into sclera; through this wound the iris, which was also incised from pupillary border outward for 3 mm., protruded. The anterior chamber was obliterated. Under chloroform the prolapsed iris was returned to its proper position. Pilocarpin 1 per cent instilled, compressed bandage applied and rest in bed. Two days later under atropin 1 per cent, followed by pilocarpin 1 per cent for five days there has resulted a restored anterior chamber, pupil nearly round and mobile, excepting a slight synechia from periphery of iris to outer margin of corneal scar. Vision good.

CASE 2.—*Tabetic Optic Nerve Atrophy.*

CASE 3.—An unusual condition of *hard granulations on both upper lids* in a man aged twenty-five years, the right lid being the worse. Six months' treatment with the usual astringents, including mercuriol combined with frequent excision of the granules, resulted in no improvement. The pathologist's report was not sufficiently positive to be of value, as he stated the tissue might be "trachoma or sarcoma." From Dr. Jackson's suggestions the x-ray has been used on the everted lids of both eyes over a period of three months, eight to thirteen inch distance, seances twice weekly. The improvement has not been very great but the most marked improvement has taken place on the worse eye.

CASE 4.—Notes read of case showing a *small growth which sprang from the bulbar conjunctiva near the outer nasal fold* and slightly external to the vertical meridian. Its attachment was sessile, being freely movable and well supplied with blood. The patient was a man aged fifty, an asthmatic who ascribed the possible cause of the growth to his habit of boring this side of his face in the pillow at night. Although the pathologist's report of the excised growth was given as epithelioma, Dr. Libby believed the growth to be benign.

Dr. Melville Black gave a further report of Case "John S.," shown at the two preceding meetings of *keratitis* in O. D. and *hyalites* with glaucoma in O. S. A sympathectomy of the left superior cervical ganglion had been performed by a general surgeon. The result had been great clearing of the vitreous haze, a subsidence of tension to subnormal and an increase of vision from 5/40 to 5/12. There is, of course, some ptosis and suffusion of the conjunctiva.

Dr. W. C. Bane presented the eye removed from the patient suffering from an *incised or ruptured cornea*, shown at the last meeting. The specimen showed retinal hemorrhage, absence of vitreous and lens.

Also an eye removed from a patient of fifty-two, a woman, whose vision in this O. D. had been nil for three years from glaucoma. O. S. the remaining eye when he first saw her had $V_n = 6/9$ T + 2. History of pain in recurring attacks, rainbow colors and smoky vision. Subsequently pain became more severe and continuous. Under eserine gr. $\frac{1}{2}$ and $\frac{5}{8}$ t.i.d. tension fell to normal $V_n = 6/6$. The optic nerve showed barely any cupping. Dr. Bane asked advice as to treatment. Dr. Black advised sympathectomy and the other members iridectomy, excepting Drs. Marburg and Neeper, who believed in continuing the eserine as long as the vision continued good and the tension normal.

Dr. Banc exhibited photographs of a girl of seventeen showing the results of a *strabismus operation*. The patient gave a history of convergent strabismus in O. S. following "scarlatina combined with cerebro-spinal meningitis," in childhood. She was wearing glasses when she consulted him. The convergence equaled 55 centrad. He did an advancement of the internus with a tenotomy of the externus according to the method of Dr. Melville Black. While there was some diplopia at first the final result has been perfect cosmetically. O. D. W. = 1.50 Sp. V = 6 6. O. S. W. = 0.50. Sp. C = 3.50 cyl. axis 95 = 6 21. No diplopia.

Dr. Friedmann showed a case that had been exhibited at the spring meeting of the Western Section of the Rhinological, Otological and Laryngological Society, which then showed a *fistulous opening just above the lachrymal sac* of O. D., through which an entered probe passed upward and backward. At the above meeting the case provoked much discussion as to whether the ethmoid cells were alone involved or whether in addition the frontal sinus was affected. The superior meatus of the right nostril was totally occluded so that no pus came through into the nostrils. A few weeks after this Dr. Black made an incision through the eyebrow on this side from end to end, carrying a vertical incision downward from the nasal end of this horizontal incision to the fistulous opening. The flaps were retracted up and down and the bone incised exposing the frontal sinus which was found extensively involved and in absolute communication with the ethmoid cells; the cells of the ethmoid having been converted into one cavity. The bone separating the frontal sinus from the fistulous track was then removed, followed by thorough curettement of the exposed areas. He then broke an opening through into the nose, finally inserting a No. 16 English soft catheter as a drainage tube from the frontal to the nostril. It was his intention to wash daily through this tube, but it was subsequently found that the lower end of the drainage tube had entered the nostril so far back in the nostril that this method was not feasible. The catheter was in consequence removed on the third day. There remains a fistulous opening above the former opening. Probing discloses a lessening in size of the frontal sinus outwardly.

Dr. E. M. Marburg spoke of the beneficial effects of *Dionin* and read notes of the following cases:

CASE 1.—A fuse wire had "blown up" within two feet of the patient's eyes. There was loss of light perception. R Atropin, cold applications and dark room, and one application of pulv. dionin. Eighteen hours afterward the dionin had caused so much

CASE 3.—An unusual condition of *hard granulations on both upper lids* in a man aged twenty-five years, the right lid being the worse. Six months' treatment with the usual astringents, including mercuriol combined with frequent excision of the granules, resulted in no improvement. The pathologist's report was not sufficiently positive to be of value, as he stated the tissue might be "trachoma or sarcoma." From Dr. Jackson's suggestions the x-ray has been used on the everted lids of both eyes over a period of three months, eight to thirteen inch distance, seances twice weekly. The improvement has not been very great but the most marked improvement has taken place on the worse eye.

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discomfort that he preceded the second application of sol. dionin 4 per cent with sol. cocain 1 per cent. Pain had been lessened by the treatment and vision in both eyes was restored to normal in one week.

CASE 2. Ammonia burn followed by leucoma. Pulv. dionin had improved vision.

CASE 3.—Leucoma from ophthalmia neonatorum. Improvement had taken place by applying pulv. dionin. He precedes the application of the powder in all his cases by cocain solution.

CASE 4.—Orbital cellulitis followed the application of sol. dionin 4 per cent. He tried the same solution on his own eye, causing him great discomfort. He then tried this solution on Case 2 without giving the slightest annoyance to the patient, showing clearly the idiosyncrasies of patients and the tolerance to dionin by continued use.

Dr. Edward Jackson demonstrated *Dr. Vandenburg's, of Brussels, Chart for Subjective Skiascopy*, which he believes is the most accurate subjective test for amblyopia, though it requires an intelligent patient to demonstrate it. Dr. Jackson had constructed a chart with the base of the triangle 6 cm. wide, 25 cm. high with horizontal arms 25 cm. apart. With these horizontal arms 1 mm. wide, observations are made at five meters distance by holding a 1 mm. probe before the eye, the resulting diplopia can be measured on the scale, the distance between each horizontal arm indicating 0.25 of ametropia. The parallax test indicates whether myopia or hypermetropia is present. In calculating the ametropia of curvature observe that in axial ametropia the size of the circles of diffusion differ from those of an equal degree of ametropia of curvature. In the same degree of myopia there is a greater degree of diffusion in the axial variety than in that from curvature.

J. A. PATTERSON, Sec'y.

SOCIETY OF THE EYE, EAR, NOSE AND THROAT SURGEONS, OCTOBER 15, 1903.

The president, Dr. Louis C. Deane, in the chair.

Dr. John E. Sunberg spoke on his experience in the Orient with various forms of eye disease.

Mr. F. B. Eaton demonstrated the substance of a paper on *Some Forms of Irregular Astigmatism: Their Detection and Correction*.

He showed how, with a common school slate having a series of concentric circles divided by a protractor into every ten degrees, the

equivalent of any two cylinders with their axes not at right angles, could be quickly and accurately determined.

The method is notably a practical one, and when testing under a strong cycloplegic, two lines on the astigmatic chart at right angles are neutralized, and a third is then found blurred, the cylinder which clears it enters into the above slate method with the first cylinder.

Dr. Martin presented a case (shown at the Society two years since) of *traumatic cataract, caused by a sharp lead pencil perforating the lens*. A peculiarity of the case was that the cortical matter of the lens became entirely clear while there was left a posterior capsular cataract; as this was persistent for a period of six months and vision was reduced to perception of light in that eye, Dr. Martin needled the lens a number of times and finally opened the bulb with a keratome and removed the opaque capsular membrane with capsule forceps. At present the boy, with proper correction, has 20/30 vision.

Dr. Kasper Pischel presented a case of *atrophy of the optic nerve with peculiar history*.

Cornelius J. B., age forty-one years, was seen by me July 2, 1903. He had been treated by his physician for about four months with sublimate iodide mixture internally for ulcers in his nose of syphilitic nature. A few years previous had fallen on his nose, which is, since then, crooked. For last two months noticed a decrease in sight. Two weeks ago left eye became suddenly blind, eight days ago had to stop work as a carpenter, three days ago suddenly in the morning totally blind. St. pr. Sickening stench from nose. After removal of a large loose necrotic bone septum showed in center perforation about one inch in diameter, the border covered with granulations. Amaurosis pupils 6 mm. not reacting. Right eye disc slightly gray. Left eye disc hazy, streaky hemorrhages inward. In spite of strong specific treatment amaurosis remained unchanged and now we see ophthalmoscopically a clear picture of atrophy of optic nerve. I have given the patient intravenous injections of cyanide of mercury one centigram, and even two, a day.

Dr. Brady asked Dr. Pischel for the field of vision in his case. He is, at present, treating a case with a very large central scotoma and marked peripheral contraction. Both disks very hazy, somewhat swollen and pale grayish pink. V. R. $2 = 6/200$. He gave a history of eating sulphur used for bleaching dried peaches, also of exposure to cold with resultant facial neuralgia. Everything appeared of a bright yellow color.

When under observation for three weeks, muscular syphilides appeared on forehead and vertex accompanied by mucous plaques on the mucous surface of the lips. After mercurial remedied V. R. 2 = 20/40.

November 19, 1903. Dr. Lotus C. Deane presiding.

Dr. Redmond Payne had sent a case of *keratitis*, which in his absence was demonstrated by Dr. Deane. The disease began during an attack of pleuro-pneumonia six months ago, in which the temperature reached 106 degrees, and which has so far shown itself but slightly amenable to treatment.

Dr. Brady described a case of *keratitis* in a young man. Here the center of the cornea was occupied by a number of infiltration spots which lay in the stroma of the center of the cornea, never coalescing, the whole thing being somewhat lozenge-shaped. The spots were about half the size of a pin head, and discrete. There was noritis nor choroidal involvement. A mild mydriasis was maintained to prevent adhesions. The spots had already begun to clear up when patient was obliged to return to his country home. The family physician, who treated the patient a year and a half ago for chancre, has since informed Dr. Brady that the spots have entirely cleared up under mixed treatment.

A similar case in a girl aged seventeen was also described by Dr. Brady. He had treated the father for syphilitic perforation of the nasal septum; the mother is a chronic rheumatic. The girl has several symptoms of congenital syphilis, such as tuberosities of the forehead, soft carious teeth, sensitive dentine, etc. Six months ago the girl presented a large central infiltrate of the cornea, the periphery remaining clear and non-vascularized. Feeding with mercuric salicylate has caused a clearing up of the opacity in five months. There never was a salmon patch. The second eye followed the first in June, as a typical interstitial *keratitis*, but has also cleared up. The patient received only one-third grain of mercuric salicylate, as she was prone to diarrhea. When only the first eye was attacked it showed itself resistant to dionin, even in solutions of 10 per cent; but after the second eye was attacked the first eye reacted to solutions of dionin of only 1 per cent strength.

Dr. Cohn thought the internal administration of mercury unsatisfactory, and preferred inunctions.

Dr. Eaton said that these cases would come under the head of what de Wecker calls, "Circumscribed Infiltration of the Parenchyma of the Cornea."

Dr. Fredrick related the case of a patient whom he had seen two weeks ago, but was prevented from showing tonight, as she had since become bedridden. The patient, an unmarried woman, aged twenty-three, had worked in an electrical establishment until March of this year, her work being to solder the filaments in the electric light bulbs. Then she was without work for four months, when she went to work in a shoe factory. At that time she had no trouble with her eyes. One month ago she was troubled with headaches, especially in the morning, and with morning vomiting, but the appetite remained unimpaired. Two weeks ago she noticed a sudden deterioration of vision, and, as her sight continued to grow worse, she concluded to consult Dr. Fredrick, who found pronounced albuminuric retinitis in both eyes, the vision of the right eye being reduced to $6/60$, with plus $1.5 = 6/24$; in the left eye to $15/20$, with plus $2 = 6/24$. Both eyes contain a large number of retinal hemorrhages, as well as white plaques, and in the right eye the star figure around the macula is almost complete. Her work in the shoe factory consisted in cementing the linings to the uppers, the cement for this purpose having a very bad smell, evaporating quickly, and leaving an elastic residue. A question asked of the superintendent as to the composition of this cement, brought the answer that it was boiled glue, but Dr. Fredrick doubts the truth of this, on account of the description of the cement given by the patient, and because the books of recipes give bisulphide of carbon as one of the main solvents for leather cements. Dr. Fredrick had seen a similar case while assistant in London, the patient being a young woman who worked in a rubber factory, her work being also with a cement made with bisulphide of carbon as a solvent. The urine of the present patient weighs 1010, contains one-third volume of albumin, and shows numerous casts in the sediment. De Schweinitz in his article on 'Toxic Amblyopias,' in Norris and Oliver's work, says that the lesion in these cases is a retrobulbar neuritis (i. e., in cases of poisoning with carbon bisulphide), similar to that in tobacco amblyopia, and it is therefore of interest to notice the different manner of entry of the noxine in these two cases.

Dr. Eaton described a case of a young woman with *double coloboma of the macular region*, who had also in the region between the macula and the disc two small spots where the choroid was also absent. Her vision was $20/70$. Dr. Wiborn mentioned a case of a similar nature, which had in addition a coloboma of the iris.

*The patient died three weeks after her first visit.

magnet, except when the foreign body is in the anterior chamber. When it is embedded in the iris tissue, the force of the large magnet may be so great as to pull the iris out with the foreign body. He has seen this occur three times, and in one case the eye had to be enucleated. He therefore uses the Hirschberg magnet, especially the newer model, which is stronger than the old forms, when the particle is behind the iris, or in the anterior chamber. If the body has been coaxed into the posterior chamber by the Haab magnet, he prefers to excise a piece of the iris rather than draw it through the pupil, and run the risk of injuring the capsule of the lens. When the body is in the vitreous chamber the pole of the Haab magnet is applied to the periphery of the cornea, near the point where the sideroscope shows the foreign body to lie, even when the lens shows the track of the perforation. When the iris commences to bulge a piece is excised, and the Hirschberg magnet used to complete the operation. If a scleral wound is still open the body should be extracted through this. When the large magnet is used for a considerable time, the pole becomes hot. This is particularly noticeable, the smaller the core of the magnet, in proportion to the strength of the current. For this reason the Haab magnet is preferable to the thinner magnet of Volkmann. He considers that the ophthalmologist who does not make use of the larger magnet is not in the position to do as much therapeutically for iron injuries as we can and should do.

NOTES AND NEWS.

ITEMS FOR THIS DEPARTMENT SHOULD BE SENT TO
DR. BROWN PUSEY, 31 WASHINGTON ST., CHICAGO.

Dr. Theo. von Schröder died in St. Petersburg on the 1st of December, 1903.

Dr. D. T. Vail has been appointed on the editorial staff of the Cincinnati Lancet-Clinic.

D. Appleton & Co. announce as ready Dr. L. Webster Fox's Text-book on Diseases of the Eye.

Dr. David H. Wells has been appointed consulting oculist to the Newton (Mass.) Hospital.

Dr. Sigrist, formerly of Basel, has been called to the professorship of ophthalmology in Bern.

Dr. Galowin, of Moskau, has been appointed professor of ophthalmology in the newly founded University of Odesia.

Samuel L. Edward, M.D., Memphis, Tenn., was married on January 6 to Miss Lillian Urbansky, at St. Marys, Kan.

The officers of the Chicago Ophthalmological and Otological Society for the coming year are: President, Dr. Oscar Dodd; vice-president, Dr. Wm. L. Ballenger; secretary-treasurer, Dr. F. A. Phillips.

The annual lecture under the Richard Middlemore Post Graduate Endowment was delivered at the Birmingham and Midland Eye Hospital, England, by Mr. J. Jameson Evans, surgeon to the hospital, on Friday, December 18. The subject of the lecture was Bacterial Diseases of the Conjunctiva, and a clinical and microscopical demonstration was given after the lecture.

Dr. M. Friedenberg, of New York, died on December 6 from cerebral apoplexy. Dr. Friedenberg was born in New York City in 1855 and was a graduate of the College of Physicians and Surgeons. At the time of his death he was ophthalmic surgeon to the German Hospital. The following resolution was adopted by the Associated Alumni of the Mount Sinai Hospital: "Our honored president and companion, Dr. Edward Friedenberg, has passed from among us in the fullness of life and activity. We recall with pride the fame he had achieved in the practice of his profession and the esteem in which he was held by his patients. We recall his unusual kindness, his generous courtesy, his sweet companionship, his broad fair-mindedness, his remarkable breadth of character, his great love of humanity, and above all his great love of children. His culture and love for the beautiful dominated his life and thought. These qualities made his life an example which we shall always cherish."

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY.

CHICAGO, FEBRUARY, 1904.

VOLUME XIII. No. 2. NEW SERIES

ORIGINAL ARTICLES.

A SHADE TO PROTECT THE EXAMINER'S EYES FROM THE BRIGHT LIGHT WHEN WORKING WITH THE SOURCE OF LIGHT CLOSE TO THE MIRROR IN PHOTOSCOPY (RETINOSCOPY).

BY MARK D. STEVENSON, M. D.,

AKRON, OHIO.

Illustrated.

The writer believes that better results can be obtained when working with the light close to the plane mirror; but since the bright light flashes into the examiner's unused eye, his eyes become quickly fatigued and unable to see properly.

Many examiners give up this method of making the test for that reason. If a book is held five or six inches in front of a five or ten millimeter opening in the light screen or chimney, it is easy to see what a large area of light there is on the examiner's face in making this test. In order to place the mirror in the central brightest light, his unused eye must also be in the light.

If the examiner places the light screen or chimney on the opposite side to the eye used in making the test, so that the light will pass across his face at an angle of about 45 degrees, he can shade his eyes by holding a large mirror in the unused hand two or three inches from the source of light, and still place the other mirror in the central bright light.

This shade, as illustrated in the diagram, prevents the bright light from passing to the examiner's eyes, which are now both in its shadow. The mirror with which the test is made being held in front of the eye, near the edge of the shade, is situated in the bright central light. The shade is supported by a ball and socket device admitting of easy adjustment, and can be quickly placed on any of

the cover chimneys in use. Its both sides may be a dull black, but the writer prefers to have a mirror on the side next the cover chimney, which, when properly adjusted, reflects light on the trial case, so that the desired lenses may be quickly found. The device is very



easily adjusted, and unless the examiner varies his distance from the light may be used for weeks at a time without changing its position. The examiner places his eyes in its shelter, and his mirror in the bright light. The writer has also had a cheaper and simpler shade made, which can not be so readily adjusted, but gives the same desired results.

CASE OF ACUTE TOXIC AMBLYOPIA FROM METHYL ALCOHOL.*

BY WILLIAM EVANS BRUNER, A. M., M. D.,
CLEVELAND, OHIO.

Illustrated.

J. G., age forty-seven, was first seen by the writer May 25, 1903. The history obtained was rather confused, and only after repeated questionings for a number of days could we obtain this much. His general health had always been good. He denied all venereal disease, smoked considerably, and would go on "a spree" on an average of about once a year. He had never had any previous trouble with his

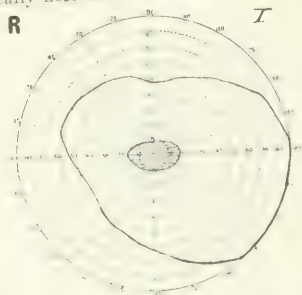
*Read before the Ophthalmic Section of the Cleveland Academy of Medicine, December 10, 1903.

eyes except that he was becoming presbyopic. He had been working about the hospital for a considerable time. About ten days before I first saw him he had started on one of his annual sprees. He drank considerably for several days; then, after stopping for two or three days, he renewed it, and with some other men, whom he did not know, went to a low resort, where they drank various concoctions, and among other things something called "white lye," or "white line," which he thinks contained wood alcohol, water, lemon and sugar. This mixture made him very sick and caused marked prostration, with vomiting. His memory of the events of the next few days is very much confused. His sight seemed blurred, but then he thought it became better until one morning, when he remonstrated with one of his fellow-workmen (for he had returned to the hospital to sleep off the effect of his debauch) for calling him so early in the morning, before daylight. When informed that the sun was shining brightly, he realized for the first time that his eyes were seriously affected.

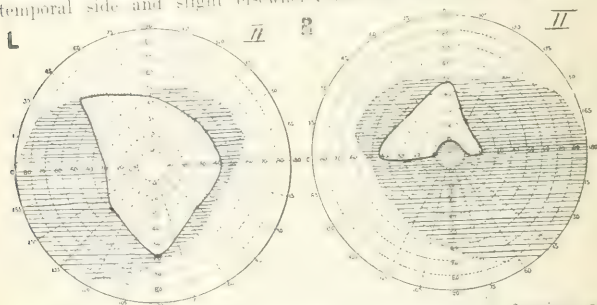
When seen at the hospital the patient was decidedly nervous. Pustular acne was marked over the body, especially on the back and arms. Examination of the urine showed a slight amount of albumin, granular and epithelial casts, no sugar. Specific gravity was 1,020. The pupils were equal, semi-dilated and irresponsive to light. He had only very slight light perception in each eye. Ophthalmoscopic examination: The media were clear, the nerves normal in color, or possibly very slightly hyperemic; the vessels normal, and in fact nothing pathologic could be seen in the fundus. The diagnosis was made of acute toxic amblyopia and an unfavorable prognosis given. He was given mercury internally and pilocarpin sweats daily. Three days later he could see the hand moved in the upper portion of his field, and at the end of the fifth day he could count fingers in the upper portion of the left field, while with his right eye he still had only light perception. The pupils were smaller and responded to light. The urine no longer showed albumin nor casts, but contained triple phosphates. He was then put upon potassium iodid in daily increasing dose and strychnin sulphate. At the end of another week he could count fingers in any portion of the left field, while with the right eye he could count fingers in the periphery but not at fixation; a central absolute scotoma was present. The ophthalmoscope revealed the temporal half of each nerve slightly paler than at the first examination. At the end of three weeks he came to the office for examination. With the right eye he

ACUTE TOXIC AMBLYOPIA.

could then count fingers eccentrically, while with the left eye vision was 1-45. Perimetric examination showed central absolute scotoma in the right eye, as shown in Chart I, with the outer limits of the form field practically normal.

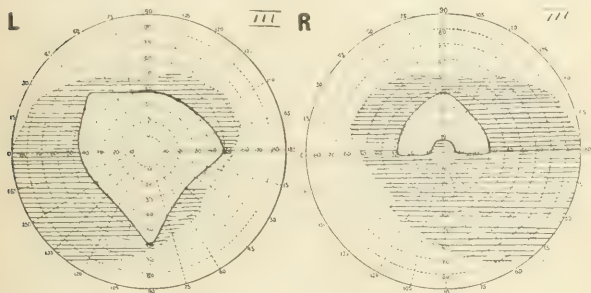


In the left eye the form field was normal and there was no scotoma. There was complete color blindness in both eyes. The ophthalmoscope revealed both disks decidedly pale, showing that atrophy had set in. From this time the vision in the left eye seemed to improve slightly, but the whiteness of the disks increased and the atrophy progressed with marked rapidity. Examination with the perimeter July 21, only five weeks after Chart I was made, showed in the left eye decided contraction of the form field on the temporal side and slight elsewhere, and in the right eye much



greater contraction in all directions with no power of fixation, so that it was difficult or impossible to measure accurately the exact limits of the field.

In the small field of the right eye he could count fingers while with the left eye vision was $1/45$. Since then there has been very little change in his condition, though he thinks he is better. The nerves are densely white with a faint yellowish or yellowish green tinge. The surface is slightly depressed (atrophic cupping) and a slight scleral ring surrounds each disk. The vessels are somewhat contracted, but are of fairly good size. The form fields (December 7, 1903) show very little change.



Vision of the right eye is $1/45$ above fixation, and with the left $2/45$. He has been taking strichnin sulphate and nitroglycerin and also theosinamin for a time. His general health is excellent.

One point of interest in regard to his fields of vision might be noted. In the right field he had, as shown in Chart I, a central scotoma indicating a retro-bulbar neuritis, and the outer limits of the form field were normal. The left field was normal without any similar central scotoma. Atrophy had not yet set in. This soon started, however, and progressed very rapidly with resulting marked contraction of the form fields. In the right eye he never regained the power of fixation. The central and peripheral blind areas united. In the left eye, which did not show the scotoma, he still retains central vision. As only the one nerve gave typical evidences of a retrobulbar neuritis it would seem as though the nerves of the two eyes have been affected somewhat differently by the poison.

A NEW CATARACT KNIFE.

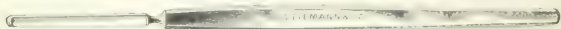
BY MELVILLE BLACK, M. D.,

DENVER.

Professor Ophthalmology Denver and Gross School of Medicine.
Illustrated.

The illustration is of a knife I have devised to supplement the regular Graefe knife. It is fashioned exactly after the Graefe knife, except that it has a probe point.

The most skilled operators occasionally evacuate the anterior chamber while the section is only one-third or half completed. If the section is completed the iris falls in front of the knife's edge and is mutilated. To avoid cutting the iris when it has fallen in front of the knife, the knife should be at once withdrawn. If the iris does not go back smoothly into position, an iris spatula can be introduced into the anterior chamber through one of the corneal



openings and the iris smoothed out. If a speculum is used it should be removed, and with the lids closed the eye is allowed to rest for a few moments, when it will be found that a very small amount of aqueous has formed in the anterior chamber. The lids are now to be held apart, or the speculum used according to the preference of the operator. After fixing the eye with forceps the probe-pointed knife is carefully introduced through the puncture into the anterior chamber. The probe point of the knife is worked over the iris toward a point in the anterior chamber a little higher than the counter puncture, and is then carried down and out through the latter opening. The section is then completed by cutting out by direct pressure rather than by the sawing movement.

It will be found that the section can be completed in the manner described without injuring the iris.

I have gone into the matter of priority, and can not find that anyone has published an account of a probe-pointed knife to be used in the manner and for the purpose above described. I do find that probe-pointed knives have been made for enlargement of the corneal section. The cutting edge of these knives is made slightly concave, while the edge of my knife is straight, and is intended to be used for an entirely different purpose.

I desire to thank George Tiemann & Co., of New York, for the pains they have taken in making the knife so perfectly, as well as for going through the numerous catalogues in their possession to see if such a knife as mine was illustrated.

THE EFFECT OF NEURASTHENIA ON THE EYES.*

DR. S. B. MUNCASTER, WASHINGTON, D. C.

Neurasthenia is an irritability of the nerve centers, known as "nervous exhaustion." It may be divided into two classes, cerebral and spinal; and it usually occurs between the ages of ten and sixty, most frequently from fifteen to twenty-five and forty to fifty-five.

Causes: Too much brain work, worry, fright, grief, sedentary habits, improperly ventilated houses, system poisoned by gas, sexual excess, self-abuse, extreme heat and cold, imperfect mastication of food, and excessive use of tobacco and alcohol, etc.

Symptoms: The patient will complain of pain over the eyes extending to back of head; specks before the eyes; will be unable to read any length of time without fatigue; letters will become blurred and if long continued vertigo may follow. These symptoms will continue even after correction of refraction errors and muscular weaknesses. At times they will forget what they have read a few minutes before; dilated pupils; the expression of the eye will change; some neurasthenics have marked asthenopia due to congested and irritated retina and muscular troubles; number of small vessels may be seen sometimes around the macula; tender spots frequently found on the eyebrow, temples, head and spinal column; conjunctiva will be congested and disappear all of a sudden; expression of fear on looking into eyes of a strong person; turning down the eyelids with listless expression; ringing sensation in the ears; reflexes heightened; tremor especially when attention is called to extend the hands; often small error of refraction accompanied by muscular defect will give more trouble than a high degree; muscular twitching about the lids and extremities.

There are many other symptoms, but these are the most prominent.

In diagnosing the chief difficulty is found in differentiating between symptoms due to neurasthenic condition and those to some slight error of refraction or muscles. Neurasthenic troubles are fleeting and recurrent, while the organic diseases are stable. In organic disease of the brain the muscles of the eyes are often paralyzed. In neurasthenic patients esophoria may appear, and in a moment the symptom is changed to exophoria, or other muscular insufficiencies. The reflexes are generally increased in neurasthenia,

*Read before the Society of Ophthalmologists and Otologists of Washington, D. C., January 15, 1904.

and as a rule diminished in organic diseases. It is distinguished from hysteria in that neurasthenia has not the emotions and convulsions.

Prognosis is good in neurasthenia if treated in time, especially in the acute stage. Chronic neurasthenia not treated properly has been known to lead to very serious troubles. That of hereditary origin is more difficult to cure than the acquired. Simple neurasthenia may be cured in two to three months, but the chronic lasts for years, although there may be months of remissions. Neurasthenic patients recover rapidly under proper treatment. After a recovery it sometimes takes a year or more for the eyes to regain their normal tone.

Treatment: The physician who treats the diseases of the eyes should make a thorough examination of the patient's eyes; the first visit without a mydriatic; making a note of the vision of each eye with and without a glass, and then both eyes, afterward the muscles and with the ophthalmoscope. On the second visit use a mydriatic and make a note of results of examinations. On the third visit, after the mydriatic is out, test the eyes again to see if all the examinations coincide, and then decide upon the proper treatment for the patient to follow. After you are fully convinced that the eyes are not giving any more trouble advise the patient to go under treatment with his physician if the symptoms still continue. A broad-minded physician will want to know the condition of the eyes. A number of the head symptoms have been cured almost immediately by glasses and treatment. Operations on the muscles should not be performed until treatment by the family physician, or neurologist, has failed.

Most neurasthenics need the "rest cure" recommended by Dr. Weir Mitchell, which consists of "seclusion, certain forms of diet, rest in bed, massage and electricity." This treatment should be carried out for a period of six weeks to three months. If the patient is not relieved somewhat, or much improved in three months, then you might as well discontinue and follow another course of treatment.

After the patient recovers he should be advised to begin to exercise from a half to an hour daily and then increase, and to live in the open air as much as possible. Driving is about the best way to get the fresh air.

A more detailed treatment of the system may be found in the works of Beard, Mitchell, Ranny, and Pearce's new Textbook on the Diseases of the Nervous System.

ULCUS CORNEA SERPENS.

BY L. D. BROSE, M. D., PH. D.

Oculist and Aurist, St. Marys Hospital, Evansville, Ind.

This affection, always a grave one so far as sight is concerned, since even in favorable cases in the adult, and the disease may almost be said to be one of adult life with greatest frequency after the fortieth year, the outcome is a dense circumscribed central opacity of the cornea with considerable loss of the normal visual acuity. When, furthermore, as in the three following cases, the persons have already met with the loss of an eye, the outcome becomes an especial source of worry to surgeon and patient alike.

CASE I. Mrs. S., forty-one years old and the wife of a farmer, came to my office June 23, 1891, with an ulcer of the left cornea just below the inferior pupillary border. She stated that about two years ago she had a similar sore on the right eye which destroyed the sight and inflamed the ball so badly that her physician was compelled to remove it. The present disease, of several days' duration, represents a small grayish disk, slightly excavated on the surface, with a more densely infiltrated crescentic border above. Upon the floor of the anterior chamber is a small collection of pus. The eye is swollen, highly injected, very painful and discharges a watery mucus. The vision from 20/xx tested by me a little over a month ago when she was fitted with an artificial eye has become rapidly and greatly impaired. She does not recall having injured the eye. Pressure over the region of the lachrymal bone was painful and evacuated a quantity of pus into the conjunctival sac. The lower canaliculus was slit up with a Weber's knife, atropine solution dropped into the eye, hot external applications of water containing boric acid ordered and the patient sent to St. Mary's Hospital. Bowman's probes were subsequently passed through the strictured nasal duct. Notwithstanding this treatment the ulcer continued slowly to spread upward over the pupil with enlargement of the hypopyon. The eye was now cocaineized and the galvano cautery, at a dull red heat, applied to the spreading edges and floor of the disease, and finely powdered iodoform dusted onto the burned surface daily. The local and subjective symptoms continued without abatement and vision sank to light perception only. A broad paracentesis was next made near the lower corneo-scleral junction by which most of the hypopyon was evacuated. Through the daily insertion of a probe between the lips of the wound it was kept open for two weeks, at the end of which time the ulcer began to clean

and heal. The ultimate result was a dense central opacity with sufficient vision to permit the patient performing her usual household duties.

CASE II. P. S., fifty-two years old and a farmer, was admitted to St. Mary's Hospital, March 25, 1897, for treatment for an inflamed right eye. I saw him for the first time several hours after his admission to the house and elicited the following history. Save for watering easily when exposed to the wind and cold, the eye has never troubled him until about a week ago, when he met with an injury, so slight, however, that he gave it no thought until the following day, when the eye began to pain and inflame. For years he has seen poorly with the left eye, and now that the other one is sore he is unable to go about. The eye is tender to touch, suffused with tears and intensely injected. On the cornea, over the lower and inner pupillary border, is a more or less circular shaped dense grayish infiltration with a shallow superficial loss of substance. Below this and in the anterior chamber is a small collection of pus. Pressure over the tear sac was painful and caused the eye rapidly to fill with matter. A one per cent solution of atropine was prescribed, to be instilled every four hours, and hot compresses of corrosive sublimate of 1 to 5,000 ordered and repeated as might be needed for the relief of pain. The following day the lower tear duct was slit up, and to the ulcer an application of pure carbolic acid made. A Bowman's probe was passed through the lachrymal duct daily. March 30th, there being no improvement, the ulcer was stained with fluorescein and cauterized with the actual cautery. April 2d, the cautery repeated and combined with a paracentesis for the evacuation of the growing hypopyon. April 5th, ulceration unchecked; a Saemisch incision was made by entering a small Graefe's cataract knife through the clear cornea below the lower border of the ulceration, pushed through the anterior chamber in front of the iris and out of the cornea just beyond the most densely colored spreading upper border, in such a way as to more or less halve this arc of propagation. With this the ulcer was arrested, its edges and floor became cleaner, and lastly healing ensued with a very large leucoma adherens. Fortunately the left eye had only lost its usefulness through a neglected iritis closing the pupil and the operation of iridectomy offering better vision in this eye, it was made and the man is again following his usual life on the farm.

CASE III. James P., fifty-seven years old and a pensioner of the War of the Rebellion for total loss of the right eye, was admitted

to St. Mary's Hospital, April 22, 1897, suffering from a corneal ulcer just over the nasal side of the left pupil. The disease is of some eight days' standing and attended with a small semi-fluid hypopyon. There is iritis with many posterior synechia. Pressure over the lachrymal sac disclosed chronic dacryo-cysto blennorrhea. A collyrium of atropine was ordered, to be instilled every four hours, with which in two days we were successful in breaking up the synechia and producing a round and fully dilated pupil. The lower canaliculus was slit up, but we were unsuccessful in probing the nasal duct because of osseous obstruction. The ulcer was cauterized with pure carbolic acid and later touched a number of times with tincture of iodine. April 30th, the disease has spread in the depth but very little on the surface. During the night it perforated the cornea, producing a worm-eaten, round-like opening with evacuation of the anterior chamber, in consequence of which the lens came forward and remained in contact with the edges of the corneal opening throughout the healing stage. The lens soon showed traces of developing cataract, which rapidly went on to complete maturity, so that the patient while healed of his ulcer was blind. During the next three months and after a difficult operation because of the pug-shaped nose of the patient, with a bullous enlargement over the left lachrymal bone, the tear sac was completely removed. October 20, 1897, an operation for cataract was undertaken. Directly after the iridectomy the vitreous which was semi-fluid, prolapsed into the corneal opening, so that the lens was hurriedly extracted with the Reisinger double hook. The eye healed without further complication and notwithstanding the central corneal opacity he had with + 9.00 vision 15/80. I wish to be understood by serpiginous ulcer as meaning a purulent disease of the cornea attended with loss of substance and showing a strong tendency to extend over surface as well as in depth, the result of infection following upon the loss of corneal epithelium through an injury that can be so slight that the patient either overlooked it or perhaps has forgotten its occurrence. The source of the infection may be a purulent disease of the lids or conjunctiva or, and most frequently, an existing chronic disease of the lachrymal passage. In my experience the gravest cases were in association with a subacute catarrhal exacerbation of a chronic dacryocystitis, as evidenced by marked tenderness upon palpation over the tear sac, congestion of the caruncle and neighboring parts of the conjunctiva, swollen and prominent punctum which upon pressure readily exudes a more or less acrid pus. According to

Uhthoff and Axenfeld the specific excitant of the ulceration is the Fraenkel-Weichselbaum diplococcus which is found in numbers in the spreading margins of the disease and also in the secretions derived from the diseased lachrymal passage. While they are probably correct in this assertion, yet so far it still remains undemonstrated that a serpiginous ulcer can be produced in the healthy cornea of an animal through inoculation of pure culture of this bacillus. We seldom are fortunate enough to see the disease in its inception, but the central area of the cornea, that portion most exposed to injury is the primary seat in nearly every instance of a circumscribed infiltration of a grayish white color. This, as in Case III, may remain on the surface comparatively circumscribed with extension and loss of substance in the depth resulting in perforation of the cornea and healing. However, in the greater number of cases the disease shows no tendency to take on so favorable a turn but spreads over surface as well as in depth, in a fixed direction indicated by one part of its circumference taking on a more saturated grayish yellow color crescentic in shape from which its designation the arc of propagation. Instead of the single saturated crescentic margin we may find several linear like smaller curves of denser infiltration encircling half or more of the corneal disease. The floor of the ulcer may show a deeper inclination toward the more densely, slightly raised, infiltrated circumference. The cornea bordering the ulcer not infrequently shows characteristic changes in the way of grayish lines running obliquely through its substance from before backward, with at times with these, shorter posterior inter-connecting lines, so arranged as to demarcate healthy and diseased corneal tissue. Severe iritis and irido-cyclitis are almost always an accompaniment of this affection. The endothelium covering descemet's membrane underlying the ulcer becomes displaced occasioning a roughened surface, upon which a precipitation of fibrin and leucocytes may occur, either in thin layers or as a swollen spongy mass. In about 70 per cent of the cases we find upon the floor of the anterior chamber a true hypopyon which, in the beginning small, may rapidly increase and soon cover in the lower half of the pupil without the corneal disease showing marked appreciable changes. The source of the pus collection within the eye is the ciliary body, the ligamentum pectinatum and the canal of Schlemm. Should a spreading ulcer remain unchecked we may have total destruction of the cornea perforation of the eyeball with iris prolapse, phthisis bulbi anterior or even panophthalmitis. Serpiginous ulcer is most prevalent in the warmer

and dry months, the season when it is pleasant to be much out of doors. It is just this life that predisposes most to foreign bodies in the eye and other corneal injuries. The treatment is medicinal and operative. The patient had best be at least confined to a darkened room. If there is existing tear sac disease a bandage is not applied, otherwise it is decidedly beneficial. Atropia is indispensable because of the iritis. Dionin possesses healing as well as pain relieving properties. Argyrol is employed when there is much conjunctival secretion and for syringing the diseased lachrymal passage. The floor of the ulcer may be repeatedly touched with the tincture of iodine or pure carbolic acid, a procedure that becomes painful with the passing off of the cocaine anesthesia, and later dusted once or twice daily with finely powdered iodoform or substitute. Hot applications of 1 to 5,000 sublimate solution relieves pain and promotes healing. This line of treatment will only suffice for the mild cases and in the absence of lachrymal affection and when tried a few days without checking the progress of the disease is in part at least to be supplanted with operative measures such as curettement, the galvano-cautery or keratotomy. In my hands curettement has proven least valuable. The cautery I prefer in cases where the ulcer does not involve corneal surface larger than a slightly dilated pupil. Should the floor of the ulcer be thin and the hypopyon of some size it may be perforated with the point of the cautery. Otherwise I combine with the cauterization a peripheral paracentesis for the relief of the hypopyon and may be pressure symptoms. Where the patient is first seen after the cornea is involved in area the size of a moderately dilated pupil or greater to my mind there is no means so certain in arresting its progress as the Saemisch incision best made after his own direction.* A small Graefe's knife is made to enter the cornea in the transparent zone bordering the side of the ulcer opposite the more highly infiltrated arc, thence carried across the anterior chamber and out through clear cornea again in such a way that the saturated grayish yellow border is halved. Failure of beneficial result after the incision Saemisch not infrequently attributes to its being made too high or too low and not directly across the middle of the most infecting border. When there is present a dacryo-cysto blenorrhea all of our efforts to arrest the ulcer as a rule will be futile if we neglect its treatment actively from the very start. Slitting up a canaliculus with subsequent probing of the nasal duct has

*Saemisch Handbuch der gesamten Augenheilkunde, 1876, p. 254, vierter band.

in my experience in these cases been a very painful procedure and not nearly so safe a plan as the extirpation of the tear sac through external incision, and I can not too highly urge this plan where the patient has already lost the sight of an eye. If for any reason the operation is inadmissible I choose external puncture, pack the cavity with gauze and perhaps later obliterate the sac with caustics.

AN IMPROVED EYE IRRIGATOR.

FRANK C. TODD, M. D.

Professor of Ophthalmology and Otology, University of Minnesota, Minneapolis, Minn.
Illustrated.

The accompanying cuts illustrate an irrigator to be used whenever occasion arises necessitating irrigation of the eye. The device is so constructed that the bottle and bulb may be grasped with one hand and when tipped up the solution may be made to flow for



some time without interruption, limited only by the capacity of the bulb which contains air.

The irrigator will be found to be especially valuable in ulcerative keratitis and purulent ophthalmia. A fine stream can be directed upon an ulcer, or pus and mucus may be easily flushed out, the force being regulated by the operator.

The bottle is well balanced and will not tip over readily while resting upon a flat surface and is so shaped that when in use the solution gravitates toward the point so that irrigation may be continued until the bottle is emptied.

The irrigator was made for me by Chambers, Inskeep & Co.



A SIMPLE OPERATION FOR ENTROPIUM.

REPORT OF A CASE.

BY J. H. JAMES, M. D., MANKATO, MINN.

On October 27th last I was consulted by a German woman, fifty years of age, blind in both eyes from long neglected entropium, the result of old cicatricial trachoma. The right eye was totally blind; the cornea over which ran numerous blood vessels was densely opaque. The left eye was in a similar condition, the opacity, however, not being quite so dense and the woman could just distinguish a hand between her and the light, but only as a shadow.

Giving a very guarded prognosis, I proceeded to operate on the lids under ether anesthesia. There being considerable narrowing of the outer canthus, a free canthotomy was first done on each, after which Dr. Green's operation was performed on both the upper and lower lids of the left or better eye.

Desiring to test the comparative value of this operation with that of one described to me by Dr. Frank Allport some years ago and which he then recommended in mild cases, and expecting little or no benefit as regards restoration of sight in this eye from any operation or treatment, I concluded this was a good opportunity, and proceeded to do the Allport on the right eye. Much to my surprise, the result was fully as good as the Green operation and the cosmetic effect much better, and at this date, four weeks after the operation, the woman can count my fingers at three feet with both eyes.

Dr. Allport's method as described to me and which I have since followed in mild cases is as follows: Stretching the skin of the lid as much as possible from the border upward three or four sutures are placed in it in this manner: Pass the needle with a strong silk suture directly through the lid at or near the upper border of the cartilage, being careful to engage the cartilage with it and then pass it back again, leaving a space of from three-eighths to one-quarter of an inch between them and tie firmly. Three of these were so placed, one in the middle of the lids and one each side half way between the first and the inner and outer canthus. These sutures were left in one week, when they were removed. By this means cicatricial adhesions are formed between the skin and the upper border of the cartilage, thus permanently everting the lid border. The operation is quickly done, and has in the past served me satisfactorily in mild cases where only a few hairs were the

aggressors; but I had never before attempted it, where there was complete entropium of both lids, and where all the lashes were resting on the cornea as in this case, and much to my surprise and delight, the result seems at this time to be as nearly perfect as it could be.

The operation is so simple that it can in most instances be done without a general anesthetic.

AN OPHTHALMODYNAMOMETER.

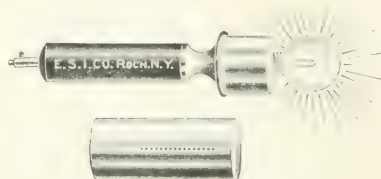
C. A. WISHART, M. D.

PITTSBURG, PA.

Illustrated.

Landolt says, "If one wishes to know a person's power of convergence, the simplest and the most logical method is to determine the distance of the nearest point to which he can converge." For this purpose he devised his Ophthalmodynamometer, which he describes as follows: "It consists of a cylinder, blackened on the outside, which can be fitted on a candle of ordinary size. The cylinder has a vertical slit about a third of a millimeter in breadth, a series of fine openings which form together a vertical line, and a circular aperture about one millimeter in diameter. The slit and the openings are all covered with ground glass. When the candle is lighted, they constitute luminous objects of fixation."

In view of its utility, it is surprising that so few ophthalmologists use this instrument of Landolt's. Its neglect may be due to the annoyance inseparable from the use of a candle. I find daily use for one which I have adapted to the electric lighting current, but which may be used with a storage or dry-cell battery, where the



light current is not available. In connection with the street current and a rheostat, is a small 10-volt lamp with a handle (Fig. 1), and over this is slipped a metal cylinder (Fig. 2), closed at the top and blackened on the outside. The cylinder is provided with a vertical

line of small openings, about one-third of a millimeter in diameter and placed about one-third of a millimeter apart, also with a single circular opening two millimeters in diameter. Instead of the ground glass, I have placed inside of the metal cylinder a cylinder of white cardboard.

To determine the maximum of convergence the vertical line of small openings is used, and, starting at a point one or more meters distant from the patient's eyes, the instrument is carried toward his face in the median line: when the *near-point of convergence* is reached (or more correctly, as soon as it is passed) the line is doubled (crossed diplopia).

To determine the near-point of accommodation, the same line of small openings is used and gradually carried toward the patient; when the limit of accommodation is passed, instead of distinct points of light, it will appear as a vertical line of overlapping diffusion circles.

When investigating the relation between accommodation and convergence, Landolt says, "When convergence and accommodation harmonize, the patient will see single and distinctly the row of luminous points as such. If convergence be at fault, the line will appear double, the diplopia being crossed if there be insufficiency, or homonymous if there be excess. Should there be a failure in the optical adaptation, the points will appear blurred."

Frequently, when testing convergence, the patient will say, there are two lines and one is higher than the other, thus indicating the presence of hyperphoria, which may readily be confirmed by other tests.

The instrument may be held in such a way as to make the line of light horizontal, and, in connection with the Maddox double prism placed in a trial-frame before one eye, used to test the oblique muscles according to the method of Savage.

The single circular aperture can be used in the examination of any form of motor disturbance in which there is diplopia, and in testing the muscle-balance with the Phorometer at the reading distance.

No claim for originality is made or intended in this connection; my wish is merely to call attention to a method of examination already mentioned in most of the textbooks, and describe the form of instrument which in my hands has proven so satisfactory. The instrument here shown was made for me by the Electro Surgical Instrument Company, of Rochester, N. Y.

THE ANGLE GAMMA AND ITS RELATION TO STRABISMUS.

FRANK E. BRAWLEY, M. D., CHICAGO, ILL.

Through the kindness of Prof. Dr. Uhthoff I am able to present two cases illustrating the extremes of apparent strabismus. These cases, which came under my care as volunteer assistant in the University Eye Hospital in Breslau, were both due to a marked deviation from the normal size of the angle gamma.

In accordance with the rule governing such cases, the apparent divergence occurred in the hyperope and the apparent convergence in the myope.

There already exists considerable confusion regarding the proper definition of the angle gamma and the method of measuring it. The definition given by Casey Wood in the Posey-Wright textbook, however, covers the ground fully. He says: "The angle gamma is that formed at the center of rotation by the optic axis and the line of fixation." This is evidently the only definition possible, as we are obliged in a practical examination to depend upon the relation of a central corneal light reflex to the line which the eye takes in fixing, an anatomical measurement being of course out of the question. Claude Worth gives the same definition in his very practical work "Squint."

The angle gamma may be either positive or negative. When positive the line of fixation cuts the cornea to the nasal side of the optic axis and the effect, when the visual axes are parallel, is that of a divergent strabismus. When negative the line of fixation passes to the temporal side of the optic axis, thus causing a deviation inward of the optic axes and an apparent convergence during parallelism of the visual axes.

Although a perimeter may be used in measuring this angle, a more practical instrument is the deviometer of Worth. This instrument permits of a measurement of the angle gamma being taken during the measurement of a deviation, so that one may note the size of this very important angle in each case without the necessity of a special device involving an extra expenditure of time.

The deviometer is constructed upon a scale of tangents to degrees at 60 c.m. distance, on the principle of the Maddox scale and the Priestley Smith tape. An electric lamp $5 \times \frac{3}{4}$ inches, situated at the zero of the scale, gives a very clear linear corneal reflex. A push-button controls this lamp and allows of a very rapid flashing



on and off of the light, which is especially valuable in examining children, whose gaze would otherwise be attracted from the fixation point by longer continuance of such a bright light.

The patient sits at the end of a 60 c.m. tape and with one eye covered looks with the other at the marker which slides along the reversible arm bearing the scale. The light is flashed on from time to time, as the marker is gradually moved along the arm and away from zero, until the light reflex appears in the exact center of the cornea. The position of the marker now shows in degrees the size of the angle. A lighted wax taper held before the marker may be used as a fixation point for children. The observer must of course note the position of the corneal light reflex from a position at the zero of the scale.

CASE I. M. G., aged seventeen years. Poor vision with asthenopic symptoms, though not marked. Had been told that she squinted. Refraction:

R. E. + 3.5 cyl. ax. 80° \odot — 0.5 sph. = V. 6/12.

L. E. + 4.0 cyl. ax. 100° \odot — 0.5 sph. = V. 6/12.

All tests for strabismus negative. Patient was then found to have a normal muscle balance and full binocular and stereoscopic vision. Angle gamma, however, measured in R. E. 8° and L. E. 9° instead of the usual 4° to 6° . The accompanying photograph, kindly furnished by Privat. Doc. Dr. Heine, shows the apparent divergence.

CASE II. L. K., aged thirteen years. Always short-sighted. An apparent convergent strabismus was noticeable across the room. All tests for strabismus negative. Refraction was —9.0 sph. in each eye, giving a vision of 6/8. The presence of binocular and stereoscopic vision and normal muscle balance led to an examination of the angle gamma, which proved to be of the negative variety, measuring R. E. 6° and L. E. 3° .

Cases have been known where a tenotomy was performed for just such a condition. It is also possible for a positive angle gamma to cover up an actual convergent strabismus of low degree, and for a negative angle to mask a slight divergent strabismus.

These would seem to be sufficient reasons for adopting this as a routine measurement in all cases of strabismus, especially as it can now be carried out with practically no extra trouble or loss of time during the measurement of a deviation with the deviometer.

A full description of the deviometer with the requisite measurements for its construction may be found in the appendix to "Squint."

This subject is treated more at length by Mauthner and Donders in their standard works on physiologic optics and by Landolt in a recent number of the Graefe-Saemisch Handbuch. But the method of examination given by each is that of Helmholtz, requiring not only his special form of ophthalmometer but also a mathematical calculation, making the method impracticable for routine work.

BRESLAU, GERMANY.

On account of the growing indebtedness of the New York Eye and Ear Infirmary with its deficit of \$22,000 for the last year and an indebtedness accumulating at the rate of nearly \$2,000 a month, it has been decided by the board of directors to practically close the hospital after May 1, keeping only one pavilion and the dispensary in operation.

There are eighty-five beds in the infirmary, but after May 1 only thirty indoor patients will be accommodated in the part of the hospital remaining open. Dispensary work will be continued, but its scope will be restricted.

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY.

VOLUME XIII. CHICAGO, FEBRUARY, 1904. No. 2, NEW SERIES

EDITORIAL.

THE NECESSITY FOR THE ANNUAL SYSTEMATIC EXAMINATION OF SCHOOL CHILDREN'S EYES, EARS, NOSES AND THROATS BY SCHOOL TEACHERS.

Ophthalmologists the world over are cognizant of the vast numbers of cases of myopia existing wherever educational requirements demand prolonged ocular effort, and also of the fact that the affection is increasing in severity while the great army of myopics are constantly adding to their ranks. They are familiar with statistics of Cohn, Allport and others, showing the intimate relationship between educational requirements and myopia and also with Risley's statistics proving the fact that uncorrected errors of refraction, hypermetropia and astigmatism give rise to disease resulting in myopia. They know the deleterious effect upon the health resulting from errors of refraction, they are familiar with the oft-repeated story of the supposed stupid boy or girl who is miraculously converted into a bright scholar by the correction of an error of refraction, or by the cure of deafness following the removal of adenoids, etc. Ophthalmologists know these things: but do they stop to think also of the normal consequences that may arise in the cases of those children whose progress in education is so retarded by a physical defect, that they may acquire an abhorrence for education and, becoming indolent, begin to develop habits which later result in moral depravity and crime. These facts and many others of great importance, are well set forth by an address delivered by Dr. Frank Allport, at Indianapolis last December, before the Indiana Board of Health School.

These things being therefore recognized, the movement, which is now so well under way, to provide a system for discovering these defective cases, and leading the way to proper treatment is but timely and just. It is a movement which should and does meet with the approval of every ophthalmologist who is devoted to the best interests of mankind. But something more than *approval* is necessary. It is a movement which though ever so just and important will

not be put into operation without the aid and best efforts of those who are most conversant with the subject, i. e., the ophthalmologists themselves. Interested ophthalmologists have had considerable experience in the State of the writer, viz., Minnesota, and have found it no easy task to permanently establish this movement, in spite of the fact that the object was so worthy. After these years of effort, in which we have experienced failure followed by success, we may be pardoned if we relate briefly our experience and advise others how they may avoid difficulties which we encountered and succeed at once in their undertaking.

A plan was first put in operation in Minneapolis in 1896 by Dr. Allport, and successfully launched under his supervision; but since his departure it has not been carried on systematically, except in a few instances, and much could be written explaining the efforts of ophthalmologists who have tried and failed to continue the good work, owing to local opposition. It is a measure which we sought to reintroduce through the medium of the School Board, but not until the plan had been presented and endorsed by the County Medical Society and the superintendent of schools, did success crown our efforts. We thought because of the justice and necessity of the measure it would meet with the hearty approval and support of the Board; we found that it did meet with their approval and that those upright members of the Board, who desired to do what was best for the children, wished to put the plan in operation, but with others it was purely a political matter, and as we had determined that the plan should be adopted because of its justice and efficiency alone, we would not stoop to political methods to procure its adoption, knowing full well that sooner or later the desired end would be secured. But the seed has been sown and is now bearing fruit, and the city or State where these tests are not made, will soon be the exception, and will be compelled by force of public opinion to adopt them. At the last meeting of the American Medical Association Dr. Allport secured the adoption of the following resolution, both in the Ophthalmological Section and in the House of Delegates:

"Whereas, The value of perfect sight and hearing is not fully appreciated by educators, and neglect of the delicate organs of vision and hearing often leads to disease of these structures, therefore, be it

"Resolved, That it is the sense of the American Medical Association that measures be taken by boards of health, boards of education and school authorities, and, where possible, legislation be secured, looking to the examination of the eyes and ears of all school children that disease in its incipency may be discovered and corrected."

Since then Dr. Allport has repeatedly corresponded with every State medical society, State Board of Health and State Board of Education in the United States, and reports great encouragement from the different States. Among the medical societies which have adopted the resolution are those of South Dakota, Michigan, Montana, Delaware, Minnesota, Colorado and the New York State Medical Association. The Southwestern Missouri Medical Association and the Mississippi Valley Medical Association, and many of the county and local societies have also passed the resolution. The adoption of the resolution by medical organizations is of great importance as it is a strong argument to Boards of Health and Education. The American Public Health Association and the State and Provincial Boards of Health of North America have passed the resolution, which will do much toward securing the assistance of the various State Boards of Health. Among the State Boards of Health which have passed the resolution and inaugurated the work, will be found those of Illinois, Montana, New York, Indiana, Minnesota, and Kansas; Connecticut doing the work under a State law. The State Boards of Education of Texas, Kansas and Minnesota are taking up the work, and so are the government schools of India.

When the attention of our secretary of the State Board of Health, Dr. H. M. Bracken, was called to the matter, he at once invited many ophthalmologists from the entire State to be present at a meeting of the Board, where an informal discussion took place and the Board gave its formal endorsement. Later the secretary appointed a committee of five oculists to work out the details of a plan. This committee, after studying the matter thoroughly, found that it could not improve it in any way upon the plans which have been perfected by Dr. Allport after much experience and study. This plan commended itself to the committee and to the Board of Health because of its extreme simplicity and practicability. The principle upon which this plan is founded is the idea of having the examinations made each fall systematically by the school teachers. It is so simple that any teacher can easily carry it out by following the printed instructions which may be found at the bottom of the "Vision Charts for Schools," printed by Mr. Almer Coe, of 74 State street, Chicago, which charts may be procured ready made at a small expense. For the purpose of keeping a check upon the various schools it was thought best that some kind of a report should be returned to the principals and State Board of Health, but it seemed important that this should be so simple as not to require much labor on the part of the teachers; consequently they are only to be asked to fill out a blank giving the name

of the pupil, showing whether or not the tests indicate an eye, ear, nose or throat disease and whether the pupil was given a card of warning to parents. After all, this is all we desire to find out for it must be remembered that the object of these tests is to benefit the children, and not to gather statistics of which there is now a profusion. It is the intention of our secretary of the State Board of Health to publish these reports in local educational magazines and he believes that this will further inspire the teachers to carry on the work.

The secretary of the Board had a conference with the State Superintendent of Public Schools, who gave the plan his endorsement and promised his co-operation. It will, therefore, be carried on under the supervision of the Board of Health where it belongs, as a sanitary measure. Let us hope that every State in the union will at once take some steps to carry into effect this plan for the systematic examination of school children's eyes and ears. This will not be done unless the initiative is taken by ophthalmologists.

F. C. T.

TEACHING OPHTHALMOLOGY BY RECITATION.

The last year in a medical school is one crowded with work and responsibility for the senior students. They know that they will not fail of graduation by being a little behind in ophthalmology. They attend the lectures fairly well and take extensive notes, such as they are, and there, except for a hasty review of these notes before a quiz, their feeling of responsibility ends. No matter how skilled the lecturer, the average green student in ophthalmology can not take notes that are worth much, and he will not take the time to read up the subject in a text book. If we can assign to the class a lesson that is definite and full of bristling good points, capable of being learned in a short time, the element of competition enters in to cause the students to come to the recitation prepared. Technical terms are seen first and then heard, and are not so easily forgotten. The teacher is given an opportunity to enlarge upon and make perfectly plain any part of the lesson that he sees is not fully understood.

It should not be our endeavor to give the student anything more than a practical working knowledge of ophthalmology. He should only be taught such things as he will have an opportunity to use in his coming general practice, careful diagnosis being of great importance. There should be something, such as refraction, left for a post-

graduate course, as there are very few practitioners who care to adjust glasses. The laws of optics and the principles of refraction should be taught, that the students may have a proper understanding of this important branch of ophthalmology. Four or five lessons will suffice to cover this ground. The common diseases of the eye, such as are likely to be first seen by the family physician, should be made clear and striking, so that they will not be confused, mistreated or neglected. Symptomatic ocular manifestations of grave systemic disorders should receive special attention. One lesson should be devoted to the theory of the ophthalmoscope, and students encouraged to purchase an ophthalmoscope and to familiarize themselves with its use in the clinical department.

About four years ago I decided to abandon the lecture for the recitation. I had lectured for nine years, and felt that on the whole it had not been a satisfactory method. The assignment of a lesson from a text book did not appeal to me, because the reading required to learn the lesson would take more time than I believed the student would devote to it. I learned that Dr. Frank L. Henderson, of St. Louis, had prepared a book of twenty-five lessons that he was using with his students. I prevailed upon Dr. Henderson to let me have a sufficient number of his books with which to supply my class. I found each lesson so arranged that it could be easily learned in an hour's time. The recitations were positively brilliant. I was greatly pleased. Perfect marks were the rule rather than the exception. Students were called upon to recite without regard to rotation, hence all had to come prepared. The final examinations showed much better markings than had ever obtained in my department before, and were much above the markings in other special departments. This is my fourth year of teaching by recitation, and I think more of it now than ever. Dr. Henderson's little book of lessons became so popular that last year he completely revised it and gave it into Blakiston's hands for publication. It contains twenty-eight lessons, each of which is strikingly clear and complete in detail. The anatomical and pathological illustrations and cuts of instruments are exceptionally fine. In short, the book is all that I can personally ask for.

The average practitioner is remarkably ignorant of ophthalmology. Rather than shield ourselves by the thought that his indifference is his own loss and our gain, we should endeavor to give him while a student the best possible working knowledge of the subject. If he then sees fit to forget it, we at least are not responsible.

MELVILLE BLACK, M. D.

REPORTS OF SOCIETIES.

SECTION OF OPHTHALMOLOGY.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting, January 19, 1904. Dr. S. D. Risley, Chairman, presiding.

Coloboma of the Optic Nerve.—Dr. John T. Carpenter exhibited a woman, aged twenty-six years, with coloboma of the left optic nerve and imperfect closure of the fetal cleft of the right eye, giving small but sharply defined colobomas extending two disk diameters down, and exposing the sclera. The coloboma of the left nerve was seen as a deep, sharply defined, almost circular pit on the lower outer portion of the nerve out of which a retinal vessel emerged. The color of this area was a deep greenish-white, and a -5 D. lens was required to focus the bottom of the pit, but the level of the nerve was seen with $+1$ D. No other congenital malformations of the eye existed. $V = 6/6$, after correction of the astigmatism.

Palsy of the Extraocular Muscles in Exophthalmic Goitre.—Dr. Wm. Campbell Posey reported a case of a female, forty-three years old, who had been in poor health for ten years, suffering from palpitation of the heart and nervousness. Both eyeballs were somewhat prominent, the left the more so. There was a slight goitre. The Graefe lid sign was present at times in both eyes. Vision was normal in both eyes, and the visual fields were not restricted. There was a palsy of the left sixth nerve and of that portion of the third nerve of the same side which supplies the inferior oblique and the superior and inferior recti muscles.

Dr. Posey pointed out that, though palsy of the extraocular muscles in Graves' disease was extremely rare, a number of cases have been reported by authors which showed that the palsy may affect a single muscle or group of muscles of one eye, or even all the extrinsic muscles of one eye, and that occasionally one or more muscles of both eyes may be simultaneously affected. Palsy of the ciliary muscle or iris has not been reported, nor of any of the associated movements of the eyes except of convergence. These extraocular palsies may occur without paralysis of other cranial nerves, or they may be associated with a similar affection of one or more of them, the facial, the hypoglossus, and the glossopharyngeal nerves being most frequently affected. He thought these cases of palsy were of central origin, originating in the nerve nuclei, and suggested that this was an additional proof of the central origin of Graves' disease.

Concerning Certain Neuro-retinal Lesions in Syphilis.—Dr. G. E. de Schweinitz and Dr. Howard Mellor (by invitation) reported the following cases.

The first case was that of an Italian, aged forty-eight, with neuroretinitis and extensive disease of the retinal blood-vessels as the result of constitutional syphilis, the primary infection having occurred nine years prior to the beginning of the visual disabilities. In addition to the slight neuritis and scattered hemorrhages, there was widespread disease of the retinal bloodvessels in the form of white patches on the vessels, lines of perivasculitis, and in places complete conversion of the vascular channels into white cords. Along some of the vessels, particularly the lower sweep of the temporal arteries, were areas of exudate somewhat in the form as that appearing in circinate retinitis. The lesions were almost identically bilateral.

The second case was that of an American, aged 40, who had contracted syphilis eight months prior to his examination, which had run an untreated and an unusually violent course. The lesions were identical in each eye, as follows: The media were clear, except for some fine punctate vitreous opacities in the posterior layers. Covering and surrounding the nerveheads were oval areas of gray-white opacity, somewhat denser in their centers and thinning gradually to their peripheries. The papilla, grayish-green in color, could only be dimly discerned through very foggy coverings. The peripheries of the retinas were unaffected. The arteries were smaller than normal and showed some perivasculitis. The retinal veins were about normal in size. The question whether there was a retinitis due to syphilis independent of choroiditis was discussed at some length and the literature reviewed. The reporters found themselves in accord with those who believe that there are two forms of this disease, one a choroidoretinitis with the primary lesion probably in the choroid, and the other one, of which their case represented an example, a true localization of the disease in the retina, which was alone selected by the syphilitic poison.

The third case concerned a young Hebrew in the second year of syphilis, who had had in four years three attacks of violent iridocyclitis, the last one of unusual severity, which had cleared under the use of ascending doses of iodid of potassium and inunctions of mercury, permitting the ophthalmoscopic examination to demonstrate in each eye a widespread, disseminated, exudative choroidoretinitis with areas of atrophy and pigment-heaping. The authors

called attention to the value, in addition to the anti-syphilitic treatment, of large doses of salicylate of sodium on account of the relief to pain which they afforded.

Discussion.—In reply to a question of Dr. Risley as to the possibility of differentiating the fundus changes in syphilis by the ophthalmoscopic appearances alone, Dr. de Schweinitz said that while many of the retinal lesions ordinarily denominated syphilitic were strongly suggestive of this infection, particularly the second variety which he had described, he believed, as many other authors did, that owing to the fact that the appearances in specific endarteritis were often very similar to those found in senile and albuminuric degenerations of the bloodvessels, a diagnosis could not always be made in the absence of other signs of the disease. On the other hand, the retinal lesions of inherited syphilis were, he thought, quite characteristic.

Some Notes on Keratitis Bullosa.—Dr. H. F. Hansell referred to the three varieties of keratitis bullosa, the traumatic, the development of the characteristic cysts on eyes previously healthy and on those previously diseased, and illustrated them by cases. Case first was that of a woman, aged forty, in whom both eyes were affected. In the right, iritis with complete posterior synechie was followed by acute outbreaks of secondary glaucoma and the formation of bullæ. In the left, the keratitis was diffused and deep. Double iridectomy restored vision and relieved the symptoms in the former, and aggravated or at least did not check the advancing inflammation in the latter. The eye remained subject to attacks of acute pain, and the cornea did not begin to regain its transparency until several weeks later. Tension was at no time increased. The pain was relieved, as in some other forms of deep keratitis, by hot stupes and the salicylates. The second case was also that of a woman, aged forty. The disease was limited to the left eye, which for years had been useless on account of complete posterior synechæ, opaque cornea, and divergence. The eye was subject to repeated attacks of pain attended with deep ciliary injection. During the time in which the patient was under observation no distinct bullæ formed, but the center of the cornea was greatly thickened and yellowish-gray in color, as though it had been the seat of cystic degeneration. Recurrence of the pain and inflammation was prevented by iridectomy. Bullous keratitis is characterized by intermissions and exacerbations, extremely rapid course of the inflammatory phenomena, increase tension during the acute stage, and by its connection with glaucoma, which may precede the bullous formation or may be a sequel to it.

Prognostic Significance of Retinal Affections in Disease of the Kidney.—Dr. John T. Carpenter, in a paper on the above subject, reviewed the statistics from ophthalmic literature, showing a general consensus of opinion that death in chronic kidney disease with retinal changes occurred, as a rule, in less than eighteen months. He remarked that, in the opinion of several general physicians from whom he had received written communications, the prognosis in these cases was not as gloomy as published figures would seem to show, and hoped later to present statistics that would substantiate this belief. From the private case records of about 4,000 patients, he presented the clinical notes of twenty-eight cases, arranged in groups, presenting certain features in common.

(1) Three cases occurring in pregnancy and one after typhoid in which the following points were made: First, the prognosis in these cases was much less grave. Second, induction of premature labor in two cases before the fifth month resulted in recovery with good vision and disappearance of the retinal lesion, while death occurred in one case allowed to go to full term.

(2) Two unusual cases, one with profuse hemorrhages bursting forward into the vitreous with death from cerebral hemorrhage in less than a year; and the second, a severe thrombotic venous affection (unilateral) with clinical signs of interstitial nephritis. Patient alive six years after first examination.

(3) So-called typical or pathognomonic type with stellate figures in macula, snow-bank exudate around the nerve, and hemorrhages. Death in six, nine and eleven months, respectively, in spite of best medical treatment.

(4) Retinal changes in which hemorrhages were almost the only changes noted, death occurring after longer periods than in the other four cases.

(5) Two cases simulating brain tumor with cerebral symptoms and choked disk. Death in five months.

(6) Cases presenting advanced arteriosclerotic changes in the retinal vessels. Six cases, death in every instance from apoplexy.

(7) Examples of degenerative type, showing small discrete degenerative lesions in central region. Two cases, each living longer than two years.

(8) Retinitis in nephritis produced by lead poisoning. Death in one month from intracranial lesion.

(9) A group of the inflammatory type in young patients, in

whom loss of vision was the first symptom. Death in very short time after the ophthalmoscopic conditions discovered.

The term typical albuminuric retinitis was objected to, and a description of the lesions usually found was given, in which special attention was called to the early vascular changes. Study of the statistics of the series of twenty-eight cases gave the following results, which corroborated the stand taken by the ophthalmic surgeon who held the view that retinal changes pointed to a rapidly fatal termination of the general disease, often the only indication of such fatal tendency. Total number of cases, excluding four complicated with pregnancy and typhoid fever, twenty-four; died, seventeen; living, two; record lost, five. Mortality in the nineteen cases, 85.5 per cent. Died within one year, thirteen; died during second year, one; died after two years, three. One living case under observation only six months, one living after six years.

In view of these statistics Dr. Carpenter was unwilling to believe that neuroretinitis of the type known as inflammatory is not a very grave prognostic symptom and one indicating a rapidly fatal result.

Discussion.—Dr. Harlan said that, notwithstanding the opinion of the general physicians that the prognosis of retinitis in kidney disease was less grave than indicated by the specialist, he saw no reason to change his opinion in regard to the fatal character of the affection. In the majority of his private cases death occurred within three months after the retinitis had advanced sufficiently to cause the patient to seek advice for his eyes, and he could recall but one case that lived over two years. In all these cases it was impossible to say how long the retinitis had existed before he examined the eyes. In one case he found a healthy fundus with the exception of three small yellowish-white spots, with urine negative but of low specific gravity. Three months later there was marked retinitis typical of renal disease. Dr. Thorington referred to one case living ten years after appearance of the retinitis, but the man had a special nurse and followed the most careful mode of living. Dr. Ziegler saw one case that died within three weeks after recognition of the ocular disease.

Dr. de Schweinitz agreed with Dr. Carpenter that the so-called typical albuminuric retinitis was not in any sense the variety that was most frequently encountered in the various types of Bright's disease with retinal lesions. He dwelt at some length on the different varieties of this affection and called particular attention to those forms which depend upon alteration in the blood-vessels, and particularly upon the early signs of these alterations when nothing more

than a moderate brick-red congestion of the disk with dilatation and tortuosity of the smaller vessels, particularly in the macula, and it may be a few spots of hemorrhage and degeneration here and there, were evident. While it had been his experience, as it had been that of most ophthalmologists, to see early death after the appearance of pronounced so-called but often inaccurately described retinitis albuminurica, he had also seen exceptions to the rule, and thought that with modern methods of treatment the prognosis *quoad vitam* was better than it formerly had been. He also called attention to the fact that the ophthalmologists frequently saw these lesions late, that is to say, in all likelihood they had existed for some time, so that it was not correct to say that the majority of patients died two years after the appearance of the retinal changes of Bright's disease, but only that they died within two years after they had first been discovered. He felt that it was high time to make a more scientific statistical collection of cases, and particularly to endeavor to separate those which probably depended largely upon a toxic action from those which were specially produced by lesions of the blood-vessels, although he agreed with many authors, for example, von Michel, Karl Theodor, and others, that in general terms the affection which has been classed under the name retinitis albuminurica was concerned with a disease of the retina and retinal blood-vessels, but that the same causes which created the vascular lesions in the kidneys also produced those in the retina, although the renal changes might be the first to rise.

Dr. Risley said that in his experience there was no question as to the gravity of the prognosis in the cases that present extensive retinitis at the first examination. He believed that a more careful examination of the fundus would show that retinal changes were more frequent than usually believed, in the early stages of affection of the kidneys. In a large hospital clinic a study of the cases will show a certain number with peri-vasculitis and obscure retinal changes which should direct attention to the renal functions and lead to examination of the urine week after week. The ocular changes were simply one evidence of the degenerative changes in the general vascular tree occurring in all parts of the body.

WILLIAM M. SWEET, M. D.,

Clerk of Section.

DETROIT OPHTHALMOLOGIC AND OTOLOGIC CLUB.

January 5, 1904.

Dr. R. W. Gillman read a paper on *The Use of Large Probes in the Treatment of Stricture of the Nasal Duct*.

He had been taught and practiced for years never to employ probes of larger caliber than 1.5 millimeters and 2 millimeters respectively in dilating strictures of the lachrymal canal. His results corresponded with the poor results of all those who follow this method of treatment of lachrymal strictures. He was discouraged at having so many failures, and sadly came to the conclusion that he was truly fortunate when a sufferer from epiphora did not apply to him for relief.

For the past eight years he has followed the method practiced by Theobald of employing the larger probes in the treatment of lachrymal obstruction, and seldom fails in passing probes of 3.5 millimeters in diameter in all cases, and in some a probe of 4 millimeters must be passed before a full dilatation of the stenosed canal is accomplished. Though considerable force must be exerted in passing these larger-sized probes, no harm was ever found to result. In fact, in many cases, especially those with carious walls, no improvement was observed until the large-sized probes were reached.

Since adopting the use of the larger probe the writer looks upon cases of lachrymal obstruction and its sequela—dacryocystitis—as one of the most satisfactory ocular affections to treat.

The non-recognition of strictures of the nasal end of the lachrymal canal was mentioned as a more common cause of failure on the part of the operator than perhaps it is supposed to be.

Attention should be directed to the correction of any nasal affection, which usually is present in these cases.

Many patients would escape such operations, such as extirpation of the lachrymal sac or lachrymal gland for the relief of obstinate cases of dacryocystitis, as proposed and practiced by some of the surgeons, if the lachrymal canal were thoroughly and faithfully treated by dilating with Nos. 14, 15 and perhaps No. 14, Theobald probes.

DISCUSSION.

Dr. Smith: Found it difficult to use larger probe than No. 12, and very seldom used larger than Bowman No. 8. Advised treatment of sac and liked argyrol very much for this purpose. Found introduction of all probes helped by use of adrenalin chloride. Thought that by use of large probes must expect the fracture of the

lacrimal bone occasionally. Size of duct varies and find some cases where one can use No. 16 and others where it would be impossible. Seen many cases of lacrimal cyst where simple treatment of sac has been satisfactory.

Dr. Campbell: Has used large probes in certain classes of cases, especially infected ones, where bone has been denuded. Does not think it necessary to use large probes in acute cases, and if patient will remain under treatment long enough will be cured.

Dr. Maire: Seen cases where mucous membrane of infected turbinate was swollen so as to close the duct. Does not think it advisable to use large probes in all cases, but found large probe advantage in cases of caries. Does not believe in violence in passing probe.

Dr. Thuner: Habit has been to use largest probe possible and increase. Condition of nose requires attention.

Dr. Connor: Has used as high as 16, but found the canal varied in different individuals, and in many cases as large a number could not be used. Found in cases of suppuration got best results with large probes.

Dr. Goux: My experience has been the same as Dr. Gillman's and find I get more satisfactory results with large probes. Use of adrenalin chloride of great help in the passage of probes.

Dr. Renaud: Own experience same as Dr. Gillman's. Goes as high as No. 14 in most cases. Does not find it necessary to use great force in passing large probes. Had a case with a very free canal, with no relief; but found the trouble with the caruncle being enlarged.

Dr. Gillman: Can not use large probes in all cases. Use of large probes does not lessen the time of treatment, but results are much better.

Dr. Gillman showed an interesting case of injury to the left eye from a dagger. The wound involved the cornea and ciliary region $T = + 1?$ There had been no pain or redness until last of the week. Enucleation thought best.

Dr. Gillman also showed the new Victor J. magnet, which he had just received.

Dr. Connor showed small piece of steel removed from vitreous chamber on December 17, 1903. It had passed through the cornea, iris and lens, and had been in the eye since 1901, producing no disturbance until a few days before operation.

GEORGE E. FROTHINGHAM,
Secretary pro tem.

CORRESPONDENCE.

A NEW ADVANCEMENT OPERATION.

EDITOR OPHTHALMIC RECORD:

Dear Sir—In an article entitled, "A New Advancement Operation," by Dr. Savage, which appeared in the November RECORD, the author made the following statement: "The risk attending advancement operations led me in 1893 to devise the operation of 'muscle-shortening' or 'muscle-tucking,' an operation that has been generally adopted. It has been claimed, occasionally, by others in words like these: 'For the method of doing *my operation* see Vol. —, p. —, of —' some journal; when the writer would have done himself greater credit by saying: 'For the method of using *my instrument* in folding the muscle in the muscle-tucking operations see Vol. —, No. —, of —' some journal."

In the sentence quoted above it may be presumed that the author refers to a notice which I published in the OPHTHALMIC RECORD of March, 1903, for I know of no one else who has published a notice of like description. This notice was entitled, "Improved Tendon Tucker," and consisted of a very short description of the instrument, with illustration. In this notice occurred the following sentence: "The operation was described in the OPHTHALMIC RECORD for February, 1902." I do not think any of the readers of the RECORD misunderstood that sentence (which differs materially from Dr. Savage's quoted above), nor do I see how they could infer that I made any claim of being the originator of muscle-tucking.

One need only read the article to which the reader is referred by that very sentence to be convinced that my intention was quite opposite. The following passage is quoted from that article: "The operation performed by the writer is a combination of the *ordinary tucking operation* and the advancement operation of H. D. Noyes."

FRANK C. TODD.

ABSTRACTS FROM CURRENT OPHTHALMIC LITERATURE.

BY FRANK C. TODD, M. D.

The Value of Ophthalmic Examinations in the Differential Diagnosis Between Typhoid Fever and Acute Miliary Tuberculosis.—

Dr. Clarence Loeb (*Archives of Ophthalmology*, September, 1903), reports a case of which there had been a careful clinical and laboratory study and in which a diagnosis of typhoid fever had been made. Postmortem showed acute miliary tuberculosis.

The examination of the eyes revealed the following conditions: Pupils dilated, reacting somewhat sluggishly to light. Patient made no complaint of disturbance of vision, which is of common occurrence in at least the earlier stages of choroidal affections. No test cards were at hand to make tests for visual acuteness, but patient, up to the evening before his death, certainly possessed a considerable amount of vision. The patient was so weak that it was necessary to examine him in a recumbent position. The source of light was an ordinary incandescent lamp and the room could not be darkened sufficiently. These factors rendered the examination very difficult and no doubt determined the difference in the ophthalmic pictures as seen by the consulting oculists. In the right eye Loeb was unable to make out any pathologic changes. The left, however, showed in the middle and lower portion of the inverted image, consequently in the upper and middle portion of the fundus a small yellowish-white patch, lying immediately adjacent to one of the superior vessels. The limitations of the patch were fairly sharply defined from the surrounding fundus by its color, but there was no pigment ring. The writer was unable to determine whether the patch lay in the same plane as the choroid or projected forward.

He again examined the patient on November 7. This time in the left eye there were two patches in the same region, separated from each other by about 2 mm. and plainly projecting above the niveau of the fundus. Loeb concludes that the last patch had developed in the interval between the two examinations: probably a submiliary tubercle had grown enough to become ophthalmoscopically visible. A thorough examination of the fundus, so far as it was possible without the use of a mydriatic, revealed nothing further. In the right eye, however, there was now to be seen a focus corresponding to the others in all particulars except in point of size and position. It was smaller than they and lay more toward the

macula. A fortunate circumstance was its position beneath one of the temporal retinal vessels, which could plainly be seen running over and raised by it. The next examination was two days later. Someone in the meantime had dilated the pupil of the right eye with atropine. The left eye showed an increase in the size of the tubercles, but not in the number. In the right eye, however, were two new ones, their positions corresponding fairly well to the course of one of the inferior temporal vessels. Repeated examinations, continued up to the day before his death, showed no change in the number of the tubercles, but a gradual increase in their size was noticed. Toward the last, the patient became more difficult to examine, owing to the supervention of a semi-comatose condition. Patient died November 21, three weeks after he came under Loeb's observation.

The postmortem revealed a general miliary tuberculosis. Only the posterior segments of the eyes were removed. In the right eye were three yellowish-white nodules, lying subretinally, and evidently arising from the choroid. Their positions were the same as Loeb had made out ophthalmoscopically. Only three were microscopically visible. The left eye contained only two tubercles, each about the size of the optic disc, and lying in the positions determined *intra vitam*. A minute description of the microscopic appearances follows. The spots seen by the ophthalmoscope proved to be tubercles, and the presence of T. B. was also demonstrated.

Opinions differ as to the frequency with which tuberculosis of the choroid is a part of a general miliary tuberculosis. Cohnheim found it in almost every case; on the other hand, Dahl found it absent in all of three cases. Between these two extremes are the findings of the following authors: Bouchert, 10 per cent; Bock, 82.7 per cent; Demme, 21 per cent; Litten, 75 per cent; Carpenter and Stephenson, 50 per cent, also in 9.25 per cent of tuberculous affections other than general miliary tuberculosis. From such a wide diversity of findings no fixed conclusions as to the frequency of the occurrence can be drawn, but at least we may expect to find tuberculosis of the choroid in at least 50 per cent of the cases of general miliary tuberculosis. Its absence does not disprove the presence of the general process. Its presence, especially when its development can be followed, coupled with other less characteristic symptoms, is pathognomonic of a general miliary tuberculosis. In cases of supposed typhoid fever running an atypical course, especially where the Widal is negative, the eye should be examined.

A table follows of reported cases of tuberculosis of the choroid and other portions of the eye.

On the Histology of Bullous Keratitis in Glaucomatos Eyes.—

By G. E. de Schweinitz, A. M., M. D., and E. A. Shumway, M. D., of Philadelphia (*Archives of Ophthalmology*, May, 1903). The authors give reports of two cases with macroscopic and microscopic appearances and offer the following observations:

The question as to the origin of the increased fluid in the cornea in oedema due to glaucoma has been much disputed. Leber believed that it was a pure stasis of the lymph circulation and proved experimentally that fluid could not be forced into the cornea from the interior of the eye by increased intraocular tension, as Descemet's membrane and its endothelial cells were impermeable. In this opinion he is upheld by Birnbacher and Czermak and others. Birnbacher and Czermak believed that the increased fluid is to be ascribed to an increased transudation from the capillaries of the corneal limbus. Fuchs, however, contended that, while under normal circumstances the endothelial cells are impermeable to fluids, under the pathological conditions which give rise to oedema of the cornea, changes in the cells, such as the loss of some of them, or in their form, whereby the interstitial spaces become broader, might render possible the passage of fluid from the anterior chamber into the cornea. Such changes have, in fact, been demonstrated by Panas and are well shown in both of our cases, the cells being flattened and in places separated from each other by decided intervals. Greeff thinks that in addition to this method there is a possibility that the fluid may come also from the capillary network of the corneal limbus. This increased fluid, which can not be drained off laterally because of the obstruction of the lymph channels, forces its way through the widened nerve canals in Bowman's membrane, or, as Brugger believed, through parts of the membrane weakened by absorption, produces an interepithelial oedema which causes the cells to degenerate and loosen their hold on Bowman's membrane and raises the epithelium in the form of bullae. The irritation of the corneal nerves may also be a factor in causing degeneration of the epithelial cells, and when the bullae formation has once occurred, the weakening of the connection between Bowman's membrane and the cells by the substitution of flattened, squamous cells for the high cylindrical, basal cells makes the recurrence of the bullae an easy one. After rupture of the vesicle, infection of the cornea may take place, and ulceration of the surface may be followed by panophthalmitis and total destruction of the eyeball.

ABSTRACTS FROM RECENT OPHTHALMIC LITERATURE.

EDWARD SHUMWAY, M. D.

PHILADELPHIA.

A Case of Formation of Cartilage in the Choroid.—Orlando Pes (Turin) (*Archiv. f. Augenheilk.*, October, 1903) gives the description of an eyeball removed from a man seventy-eight years old, which was in a condition of atrophy, as the result of an injury thirty-eight years before, and was causing sympathetic disturbance in the other eye. The cornea showed an adherent leucoma, the lens was absent, and the retina detached. In the posterior half of the eye, near the papilla, there was a plate of hyaline cartilage in the stroma of the choroid, surrounded by a connective tissue capsule or perichondrium. The presence of cartilage in the eye is an exceedingly rare occurrence. Aside from its occasional presence in tumors, it has been described only twice before—once in a cyclitic membrane, and once in a detached retina in an atrophic eye. No signs of bone were found in the eye, but as the cartilage was formed in the position usually occupied by bone, the question arises whether the cartilage should be considered an early stage of bone formation. The majority of investigators assume that ossification in the eyeball is not preceded by a cartilaginous stage and on the other hand, as the injury had occurred thirty-eight years before, ossification would probably have appeared during this time, if the cartilage is to be considered a transitional stage. Pes assumed that the process was a result of the long lasting irritation of the existing inflammation.

A Case of Transitory Lead Amaurosis.—Loewe (Frankfurt, a. M.) (*Archiv. f. Augenheilk.*, October, 1903) reports a case of transitory blindness due to lead poisoning. The patient, a man twenty-four years old, was a workman in an accumulator factory, and gave a history of sudden loss of sight following eight days of pain in the head and abdomen and loss of appetite, with constipation and scanty urination. The eyes showed dilated and very slightly reacting pupils, and absolutely normal eyegrounds, although there was complete amaurosis. The teeth were carious and a typical gray-black line was present in the gums, at the margin of the teeth. The urine was suppressed, and when, under appropriate treatment it reappeared, traces of albumin were found. The eyesight commenced to improve at the same time, and in one month had fully recovered. Following Günsburg's classification, Loewe divides the cases of lead

amaurosis into two types. (1) cases with ophthalmoscopic finding, *i. e.*, atrophy and neuritis of the optic nerve, or cases of retrobulbar neuritis, which shows contraction of the visual field and disturbances of color perception, with normal eyegrounds. (2) Transitory amauroses, which in a few hours or days reach their greatest intensity, and then recover vision equally rapidly. The general symptoms found in such cases, to which the present one belongs, are as follows: After prodromal general feelings of malaise, the eyesight suddenly disappears, while the headache, vertigo, abdominal colic increase. The pupils are dilated and react slightly to light, the eye grounds may show some fullness of the retinal veins, and grayish red discoloration of the papilla, with blurring of its edges. The amaurosis disappears in a few days. The urine usually contains traces of albumin, and occasionally hyaline and fatty casts. Three theories are advanced by different writers as to the production of the blindness. Some assume nervous disturbances, others amaurosis due to uremia produced by the lead, and others a sudden ischemia of the visual organs, which makes them incapable of functioning. Only one autopsy has been made and in this case the results were negative. Loewe is inclined to accept the third theory, which rests upon the fact that lead causes a spastic contraction of the involuntary muscular tissue, by which most of the symptoms of saturnism can be explained. Riegel has shown by sphygmographical tracings that there is a distinct increase in the arterial tension. The result of the vascular cramp is anemia, and lessening of peristalsis, with the production of obstipation. Chronic spasm of the cerebral vessels produces the cerebral symptoms, and while ophthalmoscopic examination may be negative, the disturbance may be in the visual centers. As the occipital lobe, and especially the cuneus have a comparatively scanty blood supply, a relatively slight disturbance would be sufficient to cause a temporary insufficiency of the brain.

Contribution to the Pathological Anatomy of Hydrophthalmus.—E. G. Gross (Dresden) (*Archiv. f. Augenheilk.*, October, 1903) made a microscopical examination of an eye which had gradually increased in size from the third year, and had reached an antero-posterior diameter of thirty mm. in four years. Vision was scant light perception. There had been no inflammatory process, and the fellow eye was of normal size and had only a low degree of myopia. The examination of the sections showed stretching of the eye tunics, with marked atrophy of the iris, ciliary body and choroid. There was no attachment of the iris to the cornea, but the impor-

tant factor was the *entire absence of Schlemm's canal*. No trace of it could be found in any of the sections. The papilla showed a deep excavation, with atrophy of the nerve fibres.

Hereditary Aniridia.—*Moissonnier* (Tours) (*Archives. d'Ophthalmologie*, October, 1903) reports cases of aniridia occurring in a mother and two daughters. In the mother there were opacities of the cornea, due to keratitis, horizontal nystagmus, fine opacities in the crystalline lenses, and entire absence of the irides. The eye-grounds were normal, and vision good enough to enable her to work as a rag picker. Hypermetropia of 5 D. She was underdeveloped physically, and a degenerate, with receding forehead, and low-grade intelligence. She had borne three children, one boy and two girls. The boy died at an early age, but had normal eyes. The eldest girl, aged nineteen years, was completely blind. There were present aniridia, as in the mother, and subluxation of both lenses upward, with partial opacities in each. The optic nerves were atrophic, and there were small anterior staphylomas which he considered as due to inflammation of the sclera and choroid caused by the movements of the lenses. Tension was above normal. The girl was likewise undeveloped physically, rachitic, and mentally an idiot. The other sister was fifteen years old, rachitic, with genu valgum, and undeveloped. She showed double aniridia, horizontal nystagmus, and opacities of the lenses, the left being entirely cataractous. There was a hypermetropia of 3D, and pallor of the optic nerve, on the right side, with vision of 1/10. Changes in the lenses are almost always associated with aniridia. *Moissonnier* believes that the subluxation is acquired, the zonule being unable to withstand the strain upon it; when the lens is allowed to move freely, in the absence of the support usually given by the iris. Aniridia is often hereditary; sometimes the children of one sex are affected, and those of the other sex spared; it is occasionally transmitted to three successive generations. The etiology is still uncertain: it is certain that many of the eyes are pathological, but heredity is often the sole factor.

EYES AND EARS TO BE EXAMINED.—Investigations have demonstrated that 38 per cent of the school children of the state of Wisconsin are defective in vision or in hearing, or in both. The State Board of Health has, therefore, determined that, on entrance to the public schools, each pupil shall be examined, and the parents of those found defective in sight or hearing shall be notified and the suggestion made that corrective measures be taken (*Jour. A. M. A.*).

NOTES AND NEWS.

ITEMS FOR THIS DEPARTMENT SHOULD BE SENT TO
DR. BROWN PUSEY, 31 WASHINGTON ST., CHICAGO.

Dr. L. Webster Fox is spending several weeks in St. Lucie, Fla.

Dr. Theodor von Schröder, director of the St. Petersburg Eye Hospital, is dead at the age of fifty-one years.

This year is the centennary of the Royal London Ophthalmic Hospital, commonly known as Moorfields.

Dr. Argyll Robertson is about to leave Edinburgh and take up his residence in the Island of Jersey.

A new edition of the *Manual and Atlas of Medical Ophthalmoscopy* by Sir William Gowers will soon appear. The last edition (the third) was published fourteen years ago.

The Seaside House has been selected as headquarters for the section of ophthalmology of the American Medical Association during the annual meeting, June 7-10, 1904, at Atlantic City.

The Von Graefe prize for 1899-1901 has been awarded to Dr. P. Römer, of Wurtzburg, for his article, "*The Experimental Investigation Upon Abrin (Jequiritol) Immunity as the Foundations of a Rational Treatment by Jequiritol.*" The judges were Drs. v. Hippel, v. Michel, Hess, Axenfeld and Bernheimer.

In a letter to the optical trade journals of Great Britain, Mr. W. A. Dixey, a member of the Spectacle Makers' Company, and one of the well-known opticians of London, is adverse to the fitting of glasses by opticians and says "testing the sight," which was formerly a simple procedure, has now become more complicated and intimates that the correction of errors of refraction should be done by those who have a medical education.

EUMYDRIN, A NEW MYDRIATIC.—Lindenmeyer (*Berl. klin. Woch.*, November 23, 1903) reports on a new mydriatic called eumydrin. It is a white odorless powder, which is readily soluble

in water. It is obtained from atropine, and is supposed to be so constituted that while its action on the pupil is not lessened, its poisonous effect on the central nervous system is greatly lessened. It is said to be fifty times less poisonous than atropine. Lindenmeyer has used it in 1, 2, 5, and 10 per cent solutions, and applied in each case three drops of the solution chosen. One and 2 per cent solutions cause dilatation of the pupil after ten to twenty-five minutes, after a further twenty to fifty minutes, the dilatation reaches its maximum, and after remaining in this condition for about twelve hours, the pupil slowly returns to its normal size again. A little later than the mydriasis a paralysis of the muscles of accommodation is noticed. In the majority of cases this becomes complete after the course of from two to three hours. The duration of this paralysis varies very markedly according to the age of the patient and to other factors; 5 and 10 per cent solutions produce the dilatation of the pupil after from eight to fifteen minutes. The maximal dilatation is reached after from twenty to thirty minutes, and the size of the pupil becomes again normal after from three to five days in the case of the 5 per cent solution, and after from four to seven days in the case of the 10 per cent solution. The accommodation paralysis is complete in every case with both strengths. In nearly all the cases the paralysis of accommodation cleared up at the same time or before the mydriasis. In no case did he see any toxic symptoms. In normal eyes he found that the weaker solutions took a midway position between 1 per cent homatropine and atropine, while the stronger solutions were nearly as active as atropine and the paralysis of accommodation did not last so long as with the last named. He then tested it in pathological cases, and employed the weaker solutions in irritative conditions, such as phlyctenular affections, foreign bodies in the cornea, etc. In this class of case homatropine produces too short a dilatation, while atropine produces an unnecessarily long-continued action. The solutions were highly satisfactory. With the stronger solutions he was able to break down adhesions (synechiae) in iritis, and when it failed he found that atropine also was incapable of doing better. He found it useful in both acute and chronic iritis cases. He does not think that eumydrin should be used instead of homatropine for dilating the pupil for diagnostic purposes, for he considers the production of a paralysis of accommodation lasting two or three days unjustifiable. In no case did the preparation produce any ill-effects, and the patients only occasionally complained of a slight burning sensation after the drops had been applied.—(B. M. J.)

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY.

CHICAGO, MARCH, 1904.

VOLUME XIII. No. 3. NEW SERIES

ORIGINAL ARTICLES.

FURTHER INVESTIGATION CONCERNING EYE DEFECTS IN STUDENTS.

BY EDGAR JAMES SWIFT,
Washington University, St Louis, Mo.

The present investigation is a continuation of an earlier one made by the writer¹, and, as before, the subjects were students in the State Normal School at Stevens Point, Wis.

As in the former investigation, the tests included (1) the usual test of each eye for vision, the sight of the other being shut off by an opaque disk; (2) the card test for astigmatism; (3) the Maddox multiple rod test for muscle insufficiency, and (4) diagnosing errors of refraction by means of the ophthalmoscope. The subject sat twenty feet from the test chart. Snellen's test charts were used, but as the size of the type used varies somewhat I will give the measurements. The letters that a normal eye should read at a distance of twenty feet were nine millimetres square. Ability to read them at that distance shows normal vision and is designated in this paper by twenty-twentieths. The twenty-thirtieths type was thirteen millimetres square, the twenty-fortieths eighteen millimetres, twenty-sixtieths twenty-six millimetres, twenty-eightieths thirty-five millimetres, twenty-one-hundred-twentieths fifty-two, and twenty-two-hundredths eighty-seven millimetres square.

Two hundred and sixteen were examined and all of the tests were made in each case.

The subjects are grouped on the basis of the less efficient eye, since this gauges the eye-strain.

No mydriatic was used in the tests, and so all of these errors of refraction were manifest. Without a mydriatic some defects fail

¹ Pedagogical Seminary, Vol. V, 1897, p. 202.

to disclose themselves and the muscle trouble is almost always greater than the tests show.

GROUP I.

Neither eye defective in vision.¹

1. M. Age 20, no manifest defect.
2. M. Age 20, hyperopic astigmatism compound.
3. M. Age 18, compound hyperopic astigmatism, esophoria 1°.
4. M. Age 21, right eye, compound hyperopic astigmatism; left eye, hyperopia, right eye esophoria $\frac{1}{2}$ °, left hyperphoria $\frac{1}{2}$ °.
5. M. Age 25, compound hyperopic astigmatism, exophoria 1°.
6. F. Age 20, hyperopia.
7. M. Age 26, compound hyperopic astigmatism, exophoria 1°.
8. F. Age 25, left eye, hyperopia, esophoria 1°; right, no evident defect.
9. F. Age 19, compound hyperopic astigmatism, esophoria 2°.
10. M. Age 20, right eye, hyperopia; left, compound hyperopic astigmatism; both, esophoria 2°.
11. M. Age 20, compound hyperopic astigmatism, esophoria 1°.
12. F. Age 27, compound hyperopic astigmatism.
13. F. Age 21, compound hyperopic astigmatism, esophoria 1°.
14. F. Age 19, compound hyperopic astigmatism, esophoria 5°.
15. M. Age 23, left eye, hyperopic astigmatism; right, no evident defect.
16. F. Age 17, hyperopic astigmatism, esophoria 1°.
17. M. Age 21, compound hyperopic astigmatism, esophoria 3°.
18. F. Age 19, compound hyperopic astigmatism, esophoria 1°.
19. F. Age 17, compound hyperopic astigmatism, exophoria 2°.
20. F. Age 30, compound hyperopic astigmatism, esophoria 1°; left, hyperphoria $\frac{1}{2}$ °.
21. M. Age 16, compound hyperopic astigmatism, esophoria 3°; right, hyperphoria 1°.

¹The following tests were made by Dr. D. N. Alcorn, of Stevens Point, Wis., to whose co-operation the writer is greatly indebted.

22. F. Age 14, compound hyperopic astigmatism, esophoria 2°; right, hyperphoria 1½°.

23. F. Age 17, compound hyperopic astigmatism, exophoria 2°.

24. M. Age 22, compound hyperopic astigmatism, exophoria 1°.

25. M. Age 15, right eye, hyperopia; left, compound hyperopic astigmatism.

26. M. Age 19, right eye, hyperopic astigmatism, esophoria 1°; left, compound hyperopic astigmatism.

27. F. Age 22, hyperopic astigmatism, exophoria 1°.

28. F. Age 25, compound hyperopic astigmatism, exophoria 1°.

29. F. Age 16, right eye, hyperopia; left, compound hyperopic astigmatism; both, esophoria 2°.

30. M. Age 18, right eye, compound hyperopic astigmatism; left, hyperopic astigmatism.

31. M. Age 19, compound hyperopic astigmatism, esophoria 1°; left eye, hyperphoria ½°.

32. F. Age 18, compound hyperopic astigmatism, exophoria 2°.

33. M. Age 16, hyperopic astigmatism.

34. F. Age 18, compound hyperopic astigmatism.

35. F. Age 16, compound hyperopic astigmatism, exophoria 1½°.

36. M. Age 23, compound hyperopic astigmatism, exophoria.

37. M. Age 23, compound hyperopic astigmatism, esophoria 2°.

38. F. Age 15, excessive hyperopia, esophoria 2°.

39. M. Age 23, hyperopia.

40. M. Age 19, hyperopia, exophoria, excessive.

41. F. Age 20, compound hyperopic astigmatism, exophoria 1°.

42. F. Age 22, hyperopic astigmatism, esophoria ½°.

43. F. Age 25, hyperopia, exophoria 1°; right eye, hyperphoria.

44. F. Age 17, right eye, hyperopic astigmatism; left eye, compound hyperopic astigmatism.

45. F. Age 20, compound hyperopic astigmatism, esophoria 2°.

46. F. Age 20, compound hyperopic astigmatism, esophoria.

47. F. Age 17, compound hyperopic astigmatism, esophoria 4° .

48. M. Age 12, right eye, no evident defect; left eye, astigmatic.

GROUP II.

Including those whose vision in the more defective eye is $20/30$ or better, but not normal.

1. F. Age 17, compound hyperopic astigmatism, esophoria $1\frac{1}{2}^{\circ}$; right eye, hyperphoria $1\frac{1}{2}^{\circ}$.

2. M. Age 17, compound hyperopic astigmatism, esophoria 2° .

3. F. Age 16, compound hyperopic astigmatism, exophoria 6° ; left eye, hyperphoria $1\frac{1}{2}^{\circ}$.

4. F. Age 17, compound hyperopic astigmatism, esophoria $1\frac{1}{2}^{\circ}$; right, hyperphoria $3\frac{1}{4}^{\circ}$.

5. M. Age 20, compound hyperopic astigmatism; left, hyperphoria 1° .

6. F. Age 18, right eye, hyperopic astigmatism; left, compound hyperopic astigmatism; both, exophoria $1\frac{1}{2}^{\circ}$.

7. M. Age 23, compound hyperopic astigmatism, exophoria 2° ; right, hyperphoria $1\frac{1}{2}^{\circ}$.

8. F. Age 17, compound hyperopic astigmatism, exophoria 3° .

9. F. Age 17, compound hyperopic astigmatism, exophoria 1° .

10. F. Age 16, compound hyperopic astigmatism, esophoria 1° ; right, hyperphoria 1° .

11. F. Age 18, compound hyperopic astigmatism, esophoria $1\frac{1}{2}^{\circ}$.

12. F. Age 17, compound hyperopic astigmatism, esophoria 2° .

13. F. Age 17, hyperopic astigmatism, esophoria 1° .

14. M. Age 22, compound hyperopic astigmatism.

15. M. Age 22, compound hyperopic astigmatism.

16. F. Age 16, myopic astigmatism, exophoria 2° .

17. F. Age 20, compound hyperopic astigmatism, esophoria 6° ; right, hyperphoria $1\frac{1}{2}^{\circ}$.

18. F. Age 23, right eye, compound hyperopic astigmatism; left eye, hyperopic astigmatism, hyperphoria 1° .

19. F. Age 23, compound hyperopic astigmatism, esophoria 2° .

20. F. Age 20, compound hyperopic astigmatism.
21. F. Age 21, compound hyperopic astigmatism.
22. F. Age 27, compound hyperopic astigmatism, esophoria 3°.
23. F. Age 32, myopic astigmatism.
24. F. Age 18, compound hyperopic astigmatism, esophoria 1°.
25. F. Age 21, compound hyperopic astigmatism, exophoria 1°; right, hyperphoria ½°.
26. F. Age 20, compound hyperopic astigmatism.
27. F. Age 16, compound hyperopic astigmatism.
28. F. Age 22, hyperopic astigmatism, exophoria 1°.
29. F. Age 20, compound hyperopic astigmatism, esophoria 1°.
30. F. Age 18, right eye, hyperopic astigmatism; left eye, mixed astigmatism.
31. M. Age 19, hyperopia.
32. M. Age 15, hyperopia.
33. F. Age 19, myopia.
34. M. Age 19, compound hyperopic astigmatism, esophoria 1°; right, hyperphoria 1°.
35. F. Age 22, right eye, compound hyperopic astigmatism; left eye, hyperopic astigmatism; both, exophoria ½°.
36. F. Age 25, compound hyperopic astigmatism, exophoria 1°; right, hyperphoria ¼°.
37. F. Age 15, compound hyperopic astigmatism, esophoria 3°.
38. F. Age 17, myopic astigmatism, converging strabismus.
39. F. Age 15, compound hyperopic astigmatism, exophoria ½°.
40. M. Age 19, hyperopia exophoria ¼°.
41. F. Age 21, right eye, mixed astigmatism; left eye, compound myopic astigmatism; right, hyperphoria ¾°.
42. M. Age 21, compound hyperopic astigmatism, exophoria ½°.
43. F. Age 19, compound hyperopic astigmatism, esophoria 6°; right, hyperphoria 1°.
44. M. Age 23, compound hyperopic astigmatism, esophoria 1°.
45. F. Age 26, hyperopic astigmatism.
46. F. Age 18, compound hyperopic astigmatism, esophoria 1°.

47. F. Age 18, compound myopic astigmatism, exophoria 6° .
48. F. Age 23, compound hyperopic astigmatism, esophoria $1\frac{1}{2}^{\circ}$.
49. F. Age 19, compound hyperopic astigmatism, exophoria 1° .
50. F. Age 17, compound hyperopic astigmatism, exophoria 3° .
51. F. Age 18, compound hyperopic astigmatism, esophoria 1° .
52. F. Age 18, compound hyperopic astigmatism, exophoria 3° ; left, hyperphoria $\frac{1}{4}^{\circ}$.
53. M. Age 21, myopic astigmatism.
54. F. Age 22, compound hyperopic astigmatism.
55. M. Age 17, compound hyperopic astigmatism.
56. F. Age 25, hyperopic astigmatism.
57. F. Age 20, compound hyperopic astigmatism, exophoria 1° ; right, hyperphoria $\frac{1}{2}^{\circ}$.
58. M. Age 25, compound hyperopic astigmatism, esophoria $1\frac{1}{2}^{\circ}$.
59. F. Age 21, compound hyperopic astigmatism, esophoria 6° ; left hyperphoria $\frac{1}{2}^{\circ}$.
60. F. Age 16, compound hyperopic astigmatism, esophoria 2° .
61. F. Age 18, compound hyperopic astigmatism.
62. F. Age 26, myopic astigmatism, exophoria 2° .
63. M. Age 19, myopic astigmatism.
64. F. Age 24, compound hyperopic astigmatism.
65. M. Age 20, compound hyperopic astigmatism, esophoria 1° .
66. F. Age 18, compound hyperopic astigmatism, blepharitis marginitis; right, hyperphoria 1° .
67. F. Age 18, right eye, hyperopic astigmatism; left eye, hyperopia; exophoria 1° .
68. F. Age 20, compound hyperopic astigmatism, esophoria 2° .
69. F. Age 20, compound hyperopic astigmatism.
70. F. Age 21, compound hyperopic astigmatism, esophoria 2° .
71. F. Age 18, myopic astigmatism, exophoria 1° .
72. F. Age 14, compound hyperopic astigmatism, esophoria 2° .

73. F. Age 20, mixed astigmatism, esophoria 3°.
74. F. Age 24, compound hyperopic astigmatism, exophoria 1½°.
75. M. Age 23, compound hyperopic astigmatism, exophoria 2°.
76. F. Age 22, compound hyperopic astigmatism, exophoria 1°; right, hyperphoria 1°.
77. F. Age 22, myopic astigmatism, exophoria 3°.
78. F. Age 19, compound hyperopic astigmatism, esophoria 2°.
79. F. Age 22, compound hyperopic astigmatism, exophoria 1°.
80. M. Age 20, compound hyperopic astigmatism, esophoria 2°.
81. F. Age 24, hyperopic astigmatism, esophoria 2°.
82. F. Age 20, hyperopic astigmatism, esophoria 3°.
83. F. Age 28, mixed astigmatism.
84. M. Age 12, compound hyperopic astigmatism.
85. F. Age 21, compound hyperopic astigmatism, esophoria 2°.
86. M. Age 17, astigmatism, ciliary spasms.
87. F. Age 19, astigmatism.
88. F. Age 20, compound hyperopic astigmatism, esophoria 5°.
89. F. Age 14, right hyperphoria ½°.
90. F. Age 18, myopic astigmatism, esophoria 1°.
100. F. Age 20, hyperopia.
101. F. Age 20, right eye, central scotoma absolute; left eye, excessive hyperopia.
102. F. Age 17, hyperopic astigmatism, esophoria 5°.
103. M. Age 21, hyperopic astigmatism.

GROUP III.

Including those whose vision in the more defective eye was $\frac{20}{40}$ or better, but not so good as $\frac{20}{30}$.

1. F. Age 18, compound hyperopic astigmatism, exophoria 2°.
2. F. Age 18, compound hyperopic astigmatism, esophoria 4°.
3. F. Age 22, right eye, hyperopia; left eye, compound hyperopic astigmatism.
4. F. Age 22, compound hyperopic astigmatism, esophoria 2°.
5. F. Age 26, compound hyperopic astigmatism, esophoria 2°; right hyperphoria ½°.

6. F. Age 23, compound hyperopic astigmatism, exophoria 1°.
7. F. Age 19, compound hyperopic astigmatism, exophoria 1°.
8. F. Age 20, compound hyperopic astigmatism.
9. F. Age 20, compound hyperopic astigmatism.
10. F. Age 22, compound hyperopic astigmatism, esophoria 1°.
11. F. Age 20, right eye, hyperopic astigmatism; left eye, compound hyperopic astigmatism; esophoria 2°.
12. F. Age 26, myopic astigmatism; left, hyperphoria 1/2°.
13. F. Age 20, compound hyperopic astigmatism.
14. F. Age 20, compound hyperopic astigmatism.
15. F. Age 23, compound hyperopic astigmatism.
16. F. Age 17, compound hyperopic astigmatism, esophoria 1°.
17. F. Age 20, compound hyperopic astigmatism.
18. F. Age 22, compound hyperopic astigmatism, left exophoria 1°.
19. F. Age 17, hyperopic astigmatism, exophoria 6°.
20. M. Age 19, hyperopic astigmatism, esophoria 1°; right hyperphoria 1/2°.
21. F. Age 30, esophoria.
22. F. Age 13, hyperopia.
23. F. Age 15, hyperopic astigmatism, blepharitis.

GROUP IV.

Including those whose vision in the more defective eye was $\frac{20}{60}$ or better, but not so good as $\frac{20}{40}$.

1. F. Age 20, myopic astigmatism, esophoria 2°; right hyperphoria 1/2°.
2. F. Age 20, hyperopic astigmatism, esophoria 3°.
3. F. Age 30, right eye, compound hyperopic astigmatism; left eye, compound mixed astigmatism; esophoria 2°; right hyperphoria 1°.
4. F. Age 24, compound hyperopic astigmatism, esophoria 2°.
5. F. Age 30, compound hyperopic astigmatism.
6. F. Age 20, compound myopic astigmatism, exophoria 1/2°; right hyperphoria 1/2°.
7. F. Age 25, compound hyperopic astigmatism, oblique insufficiency.
8. F. Age 16, myopic astigmatism.
9. M. Age 25, myopic astigmatism.

10. M. Age 23, compound myopic astigmatism, esophoria 1°.
11. F. Age 30, hyperopic astigmatism, hyperesophoria.
12. F. Age 27, compound hyperopic astigmatism, esophoria 1°.
13. M. Age 27, compound myopic astigmatism, esophoria 1°.
14. F. Age 19, compound hyperopic astigmatism, esophoria 3°; left hyperphoria ½°.
15. F. Age 22, myopic astigmatism, esophoria 2°.

GROUP V.

Including those whose vision in the more defective eye was $\frac{20}{80}$ or better, but not so good as $\frac{20}{60}$.

1. F. Age 18, mixed astigmatism, esophoria 1°.
2. F. Age 22, mixed astigmatism, esophoria, blepharitis marginitis.
3. F. Age 21, mixed astigmatism, exophoria 3°, left hyperphoria 6°.
4. F. Age 18, compound hyperopic astigmatism, esophoria 3°, right hyperphoria 1°.
5. M. Age 24, myopic astigmatism compound, exophoria.
6. F. Age 30, right eye, mixed astigmatism; left eye, compound myopic astigmatism; exophoria.

GROUP VI.

Including those who vision in the more defective eye was $\frac{20}{120}$ or better, but not so good as $\frac{20}{80}$.

1. F. Age 24, mixed astigmatism, exophoria 6°.
2. M. Age 20, myopia, exophoria 3°.
3. F. Age 16, compound myopic astigmatism.
4. F. Age 18, compound hyperopic astigmatism.
5. F. Age 25, compound hyperopic astigmatism.

GROUP VII.

Including those whose vision in the more defective eye was $\frac{20}{200}$ or better, but not so good as $\frac{20}{120}$.

1. F. Age 16, compound hyperopic astigmatism.
2. F. Age 20, right eye, hyperopic astigmatism; left eye, hyperopia.
3. F. Age 22, myopia, exophoria 3°, right eye, hyperphoria ½°.
4. F. Age 20, right eye, hyperopia; left eye, mixed astigmatism.

5. F. Age 17, right eye, mixed astigmatism; left eye, compound hyperopic astigmatism.
6. F. Age 18, myopic astigmatism, esophoria 1°.
7. F. Age 20, right eye, compound hyperopic astigmatism; left eye, myopic astigmatism; esophoria 8°.
8. F. Age 22, compound myopic astigmatism.
9. M. Age 22, compound myopic astigmatism.
10. F. Age 18, compound myopic astigmatism.
11. F. Age 18, compound myopic astigmatism, ciliary spasm.
12. M. Age 14, compound myopic astigmatism.

GROUP VIII.

Including those whose vision in the more defective eye was below $\frac{20}{200}$.¹

1. F. Age 21, R. V. $\frac{20}{30} +$ L. V. $\frac{6}{200}$, right eye, compound hyperopic astigmatism; left eye, mixed astigmatism; exophoria 11°, right hyperphoria.
2. F. Age 17, R. V. $\frac{8}{200}$, L. V. $\frac{12}{200}$, compound mixed astigmatism, esophoria 2°.
3. F. Age 19, R. V. $\frac{20}{120}$, L. V. $\frac{15}{200}$, compound myopic astigmatism, diplopia, esophoria.
4. F. Age 19, R. V. $\frac{20}{30}$, L. V. $\frac{6}{200}$, right eye, compound hyperopic astigmatism; left eye, hyperopia; esophoria 6°, hyperphoria 2°.

SUMMARY.

1. Only twenty-two and twenty-two-hundredths per cent of the two hundred and sixteen students examined had normal vision.
2. Of those with normal vision only one failed to disclose some manifest error of refraction or muscle insufficiency.
3. Thirty-five of the forty-eight with normal vision showed manifest compound hyperopic astigmatism in one or both eyes, while of the remainder four had simple hyperopic astigmatism and four others hyperopia. In most of the cases more or less muscle insufficiency was evident.
4. In thirty per cent of those examined the vision of one or both eyes—the most defective where there was a difference—was below twenty-thirtieths, while between nineteen and twenty per cent—nearly as many as had normal vision—were unable to read the twenty-fortieths line at a distance of twenty feet.

¹As the vision of those below $\frac{20}{200}$ is too irregular to admit of classification, the vision is given for each eye.

SOME NOTES ON BULLOUS KERATITIS.

BY HOWARD F. HANSELL, M. D.,

PHILADELPHIA.

My interest in this rare disease was stimulated by the following cases: Mrs. B., aged 40, was sent to me by a practitioner in Philadelphia in December, 1903. She had been under treatment since September for sudden loss of vision and intermittent pain in the right eye. The eye was deeply injected, the cornea opaque in its lower half and contained on its surface the remains of a ruptured vesicle measuring on its corneal base about 4 mm. in diameter. The partly preserved walls of the cyst, attached by their base to the edge of an excavation, were gray in color and resembled tags of necrosed corneal tissue. The pupillary border of the iris was completely adherent to the lens capsule, and the visible pupillary portion of the capsule was opaque. T. was normal, the ciliary region sensitive to pressure and the cornea not anesthetic. The patient stated that for the past two days vision was declining in the left—the hitherto good—eye, and she was suffering a moderate amount of pain. The central part of the cornea had lost its transparency, the iris was slightly swollen but not adherent, the ciliary vessels were injected, T. was normal and there was no sensitiveness of the ciliary region. Fearing that a degenerative process similar to that in the right eye had commenced, I advised and two days later performed double iridectomy. The effect of the operation was astonishingly different in the two eyes. The right—the first and more severely affected—improved immediately. The remains of the cyst disappeared, the injection cleared up and vision decidedly improved, increasing from light perception to $\frac{10}{200}$. The left was not improved. On the contrary, the disease advanced, but whether as a result of the iridectomy or a continuation of the inflammatory process I am unable to decide. The cornea became infiltrated with lines of opacity running in every possible direction and invading the deeper layers in their entire extent, evidently pursuing the tortuous and deviating channels of the lymph vessels, while the surface became stippled as in glaucoma, although it showed at no time any indication of the formation of bullæ. The vision was reduced from $\frac{20}{50}$ before operation to $\frac{3}{200}$ one month later. Since then the opacities have steadily diminished, and now the cornea shows signs of recovering at least part of its former transparency.

Read before the Section in Ophthalmology, College of Physicians, January 19, 1904.

The second case came under my observation at about the same time. The affection was limited to the left eye, which had been divergent for years. This patient was also a woman of 40. The cornea was opaque and thickened in its central area, as though it had been the seat of bullous formation. The iris was adherent at the pupillary border to the opaque lens capsule. V.=light perception. The woman complained of blindness and recurring attacks of violent pain. Atropia was prescribed experimentally. Having produced no effect, iridectomy was performed. The eye recovered promptly and vision has slightly improved.

The most complete description, although not the longest, that I have met with in reviewing the literature is that by Saemisch in Saemisch and Graefe Handbuch, written thirty years ago. Subsequent writers have referred to this article as authoritative. Saemisch differentiates the bullous formation from the vesicular according to the depth of involvement of the cornea. In the former the anterior wall of the cyst consists of epithelium, Bowman's membrane and in some eyes of the anterior layers of the cornea propria; in the latter of the epithelium only.

Clinically, keratitis bullosa may be divided into three classes: First, the traumatic, described by de Schweinitz, Meyer, Kleinschmidt, Sood and others, from injuries by foreign bodies, gunpowder, ciliæ in the anterior chamber, etc. The disease is induced by erosions of the cornea made by the passage of foreign bodies striking tangentially rather than by the embedding of the body. The cysts are apt to be recurrent. Second, keratitis bullosa in eyes hitherto healthy. Saemisch describes a representative case. A 60-year-old man who had never suffered from eye disease sought relief for marked diminution of vision in left eye, which he had noticed for several weeks. In the cornea, spread over the greater part, were found opacities of different intensity formed of small gray stripes or lines lying at various depths. The surface of the cornea in which no blood vessels were present appeared dull, as though it had been breathed upon, and showed at no place any material loss of substance. The iris was dimly seen through the opacity and moderate injection of the eye was present. The treatment consisted in the use of atropia. Suddenly accompanied by severe pain a cyst appeared. Notwithstanding puncture of the walls and excision of the anterior layers cysts appeared at intervals of every two or three days for several weeks. At length acute glaucoma developed, for which iridectomy was made. The recurrence of the cysts was pre-

vented and the glaucoma was cured. Finally the cornea regained most of its transparency. Third, keratitis bullosa on eyes previously diseased. The relation between glaucoma and keratitis bullosa assumed by most writers is further shown by the history of the three eyes recorded above and by most of the reported cases. And yet it would appear to be rather the glaucomatous condition of the eye induced by chronic iritis and posterior synechiae than by primary glaucoma. The underlying cause is probably interference with the nutrition of the cornea and perversion of nerve action dependent upon disease of the lymph system of the eye.

The disease is characterized by intermissions and exacerbations, the extremely rapid course of the inflammatory phenomena, increase in T. during the acute stage and by its connection with glaucoma which may precede the bullous formation or may be a sequel of it.

HYGIENE OF THE EYES IN MEXICAN SCHOOLS.*

BY DR. M. URIBE-TRONCOSO,

MEXICO, D. F.

Since the year 1890, when Dr. Ramos collected the first statistics concerning refractive errors in Mexican school children, to which I contributed by reporting one thousand cases, no systematic examinations, with practical objects in view, have been made in the Mexican Republic. The statistical data which were then collected clearly demonstrated the necessity of adopting hygienic measures to arrest the progress of ametropia, which, although not of such an alarming character as seen in Europe, especially as regards myopia, is nevertheless sufficiently noteworthy to justify the intervention of school authorities for the relief and prevention of ocular diseases, caused or aggravated by school life.

In several articles written since that period I have insisted, not only on modifying the hygienic conditions of the school buildings, but also on the great necessity of making annual systematic examinations of the eyes and ears of the children, in order to correct existing defects, thus increasing the proportion of school children who can, by becoming more normal physically, take advantage of offered educational facilities. These tests should be performed by school teachers, and in order to practically demonstrate to them the facility with

* Read before the American Public Health Association, Washington October, 1903.

which the examinations can be made. I recently undertook the task of inspecting the eyes of all the pupils in the Normal School of Mexico City, in which about five hundred pupils are receiving their education. After lecturing on the anatomy and physiology of the visual organ, I gave them some practical demonstrations of the proper methods to be employed in such examinations, to show the extreme simplicity and efficiency of the plan. The proportion of pupils found to be suffering from ametropia in this one school is in itself sufficient to demonstrate the necessity for the work. The total number of pupils examined was four hundred and forty-nine, of which four hundred and two were between seven and eighteen years of age, and forty-seven of the Normal pupils were between thirteen and twenty-nine years of age. Snellen's test-types were used at five meters, the best point of vision was ascertained, and the ametropia estimated by skiascopy. The ophthalmoscope was used in grave cases but no mydriatic was employed. Two hundred and sixty pupils or 57.70 per cent were found to have normal eyes, and one hundred and nineteen, or 42.30 per cent were found to possess abnormal eyes (this refers merely to refractive errors). The cases were divided as follows:

Hypermetropia, or hypermetropic astigmatism...	24.93 %
Myopia, or myopic astigmatism.....	12.24 %
In detail these can be subdivided as follows:	
Pure hypermetropia	11.35 %
Pure myopia	6.91 %
Hypermetropic astigmatism	13.38 %
Mixed "	6.23 %
Mixed "	0.89 %
Irregular "	0.44 %

It is necessary to bear in mind that the number of cases of hypermetropia only refers to the manifest and not the total number of cases of hyperopia, which is certainly much greater; but from a practical point of view it is sufficient for an examination to reveal the presence of the former. In fact, Dr. Randall, after having by the aid of the ophthalmoscope discovered 75 per cent of cases of hypermetropia, only found 26 per cent by subjective examination.

On making a comparative study of the data collected by ages, we find that pure hypermetropia diminishes in proportion to age, for which reason we only found one case among the Normal pupils; but on the other hand, the hyperopic astigmatism is much more frequent among them, and the number of cases of myopia mounts up to 19 per cent. At all ages there is a very considerable proportion of

hyperopia astigmatism, and this fact tends to confirm the ideas of Javal and Risley, who consider astigmatism the principal factor in myopia, the intermediate stage between the emmetropic eye when the pupil enters the school, and the myopic eye when he leaves it, after long hours of close work and of continued effort.

The attention of European hygienists have been specially directed to the study of myopia, that, especially in Germany, has acquired enormous proportions, amounting to 50 per cent of the students: but after studying the evolution of the eye and its transformations, great importance is now given to astigmatism which requires to be corrected as soon as possible by means of appropriate glasses, as it is more active than pure myopia and the approximation which it requires is more constant.

In Mexico the proportion of myopic cases is not very considerable; the influence of race is notorious. In place of the widely separated orbits of the broad faced German, who is thus compelled to make great efforts in order to obtain convergence, we find the head of the Mexican native narrow, and convergence easy.

Owing to the high table-lands of Mexico, natural daylight is abundant and prolonged, and even in the winter time artificial and poor light is never found in the school rooms, which facts undoubtedly have a distinct bearing upon the comparative infrequency of myopia in the Mexican Republic. But if the cases of myopia do not reach a very high figure, on the other hand the proportion of cases of ametropia is certainly very considerable. Forty-two per cent of the pupils in the Normal School have not sufficiently clear sight to enable them to follow the teacher's explanations on the blackboard, and 25 per cent require such close approximation that it is incompatible with the functional integrity of the organ.

Accommodative asthenopia is also a constant source of trouble to the pupil, who, weary of the constant efforts that have to be made in order to read, abandons the work and becomes dull and idle. It is, therefore, very necessary both from a hygienic as well as an educational point of view, to place pupils who suffer from ametropia in a position to struggle against the dangers that necessarily threaten their sight through their school life, which in Mexico is becoming daily more active, owing to the continual increase in the number of schools.

It was at first believed that the remedy would be found in a modification of the hygienic conditions of the school buildings, of the furniture, books, writing, etc., and from that date commenced the

great hygienic revolution that has transformed these buildings into school palaces, with all the proper conditions of light, ventilation, etc., in the place of former small and dark school rooms, situated in narrow and noisy streets. Hygienists pointed out the best conditions of light, of approximation during the work, and the height of the benches, according to the age of the pupil, that are required. The publishers remodeled their books and printed them with larger type and on better paper, and in many schools slanting writing, that requires such close and improper application of the eyes, was prohibited, and the upright style of writing was substituted. It was expected that all these improvements would give satisfactory results, but after the lapse of several years it was found that they were not sufficient, and that other regulations were necessary. The logical remedy for this state of affairs consists not only in building and maintaining healthy and hygienic schools, with proper lights, seats, books, etc., etc., but in detecting and correcting ocular and aural defects, that disease in its incipency may be cured or at least checked, and the child given a fair chance at progression in the battle of life.

I beg leave to acknowledge at this juncture the great impulse that has been given to this subject by many distinguished oculists of this country, such as Randall, Risley, Allport and others, and wish to particularly endorse the plan of Dr. Allport, by which the pupils are annually and systematically examined by their room teachers, and warning cards sent to the parents of defective children, urging them to seek proper medical advice. I desire also to direct attention to the valuable report of Dr. Risley, who has collected the statistics from nearly two hundred thousand eyes, from his own labors and the work of other ophthalmologists, and clearly demonstrates that the proper correction of myopia has reduced that condition in Philadelphia from 28.43 per cent in 1874 to 1880, to 16.98 per cent in 1890 to 1893. It therefore appears to be generally conceded that all school children should be annually examined as to their ocular and aural conditions, and myopia and other abnormal conditions corrected, and in order that medical and other attention should be directed to this important subject, Dr. Allport introduced and secured the passage of a suitable resolution at the last meeting of the American Medical Association at New Orleans. This resolution recommends to all Boards of Health and Education and Legislatures that steps should be taken insuring the annual systematic examination of the eyes and ears of all public school children in the United States. As the American Public Health Association is an International body, having repre-

sentatives and influence with all North American Nations, its voice should be heard on this subject, not only in an appeal to the authorities in the United States, but also to other Nations of North America, hoping thereby to alleviate the unfortunate conditions of many million school children. I, therefore, have the honor to submit to this Association the following preamble and resolution:

"Whereas, The sight and hearing of school children is of inestimable value, not only for their present but for their future condition, and as abnormal conditions of these organs of special sense militate immeasurably against the proper acquirement of an education, and the future welfare of the coming generation: therefore, be it

"Resolved, That the American Public Health Association recommends that measures be taken by all School and Health authorities, and by the several Governments of North America, to secure the examination of the eyes and ears of all public school children, that diseases of these organs may be checked or cured in their incipency."

OPTIC ATROPHY FOLLOWING IODOFORM POISONING.

BY WALTER HAMILTON SNYDER, M. D.,

TOLEDO, OHIO.

(Illustrated.)

F. K., aged fifty-eight, male. Was treated for hernia by the injection of carbolic acid at an advertising hospital. Sloughing followed, which was dusted with iodoform. July 10, 1897, he noticed a decided taste and odor of iodoform and July 31 everything had a greenish yellow color. August 22 he became unable to read or see at a distance.

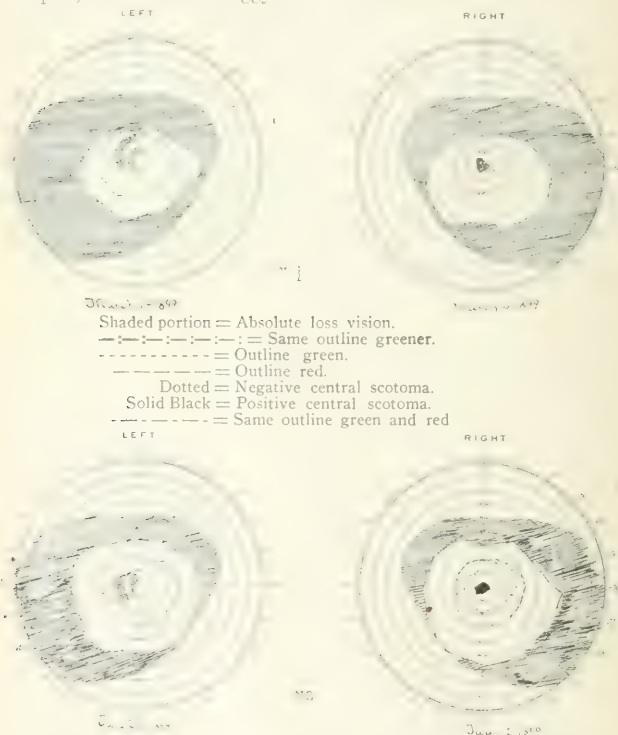
I saw him in consultation August 28, 1897. Patient is an intelligent man, excellent habits, does not use tobacco or alcohol. Is myopic and has been wearing in each eye—3.00 D. S. Vision at this time, O. D. 10/200, O. S. 8/200. Glasses do not improve.

Present condition of right eye: Pupil small, lens has central irregular opacity, field of vision much contracted and large positive central scotoma for red, is particularly sensitive to green. Ophthalmoscopic examination difficult. Some retinitis and papillitis. Patient thinks opacities in lens came in July.

Left Eye: Lens has a central stellate opacity running to periphery of lens, field of vision contracted, small positive central scotoma for red. Periphery of field distinguishes red properly, identifying one-half the reds shown. Fundus same as right eye.

Treatment was based on elimination of the drug and improvement of general condition.

The yellow color persisted until May, 1898, nearly a year. Could not read until October, 1898. January 30, 1899, the nerves pale and atrophic, rest of fundus foggy and indistinct.



The lenses have cleared up with the exception of the opacities, making these stand out much clearer. Vision about same, general condition never better. Says pavement with right eye has yellow tinge and with left eye reddish tinge. This case presents a few new features, noticeably the colors noticed. Field for white varies at times. Colored fields seem to remain stationary. Present condition I am told is slightly better, at least no worse.

SMALL SHOT INJURIES OF THE EYEBALL.

BY H. MOULTON, B. S., M. D.,

FORT SMITH, ARK.

The eye may be injured by small shot so extensively that at the first, according to generally accepted principles it is known that the eye must be lost. On the other hand, seemingly very grave injuries from the same cause do occur in which the globe and even good vision may often be preserved.

One peculiar form of shot injury is that in which the shot perforates the lid or orbital wall and impinges at a tangent on the sclerotic without perforating it, but with such force as to cause rupture of intra-ocular vessels and hemorrhage within the vitreous chamber.

Another form is where the shot makes a puncture and counter-puncture in the globe, i. e., passes directly through it.

In the first of these the prognosis if guarded is relatively good; in the second not absolutely bad, especially if the wound of entrance does not involve the "dangerous region."

The following have come under my observation:

CASE I. D. H., age fifteen. While hunting on December 1, 1900, received in his body a well scattered charge of bird shot from a companion's gun at some distance away directly in front. One shot entered the upper lid of the right eye just below the middle of the brow. The boy soon noticed defective vision and described a scotoma in the central part of the field of that eye. The father, a physician, fearing that the shot had entered the eye, at once brought him to me. I found considerable chemosis about the upper half of the eye ball, but on extremest downward rotation could find no hole in the sclerotic. There was a hemorrhage in the vitreous. It had its origin from just in front of the equator above and hung down, resembling a large worm with the head just below a point opposite the center of the pupil. Vision 15/30. In a month the clot of blood was broken up and absorbed, leaving vision 15/15, and a perfect field. Now the shot could be felt lying on the sclerotic just between the equator, in extreme downward rotation, and was removed by incision through the lid. At the present time the vision is perfect.

CASE II. P. L., age eleven. September 5, 1902, was struck in left eye by a B. B. shot from an air gun, and brought to me a few hours later. The lids and cornea were uninjured, but the shot had buried itself under the conjunctiva against the nasal aspect of the sclerotic, at about the equator, and was plainly seen on extreme tem-

poral rotation. It was at once easily extracted. Vision was reduced to 20/100. There was *commotio retinae*, but a hemorrhage could not be made out. Next day a small amount of blood could be seen infero-nasally in the vitreous. During the following two months this scattered, producing numerous floating opacities, which were finally absorbed, leaving a normal field and vision 20/20, without visible fundus lesions.

The following relate to shot passing through the ball:

CASE III is most interesting. T. F. W., age fifteen, while hunting October 12, 1901, was hit in the left eye by some 7½ shot from a companion's gun about fifty paces to his front and left. One shot went into the orbit, entering just under the middle of the brow without touching the eyeball. Another perforated the upper lid near the middle of its lower third, passing obliquely from before backward and from left to right and entering the sclerotic by a clean, smooth perforation 3½ mm. to the nasal side of the corneal margin. I saw the case about eight hours after the accident. There was much swelling and chemosis in the nasal half of the lids and ball. The nasal half of the vitreous was much obscured by horizontal streaks of opacity but the optic disks and main retinal vessels were fairly well seen, the middle and temporal portions of the vitreous not being at this time much disturbed. No foreign body could be made out in the fundus, but just at the limit of the ophthalmoscopic view nasally was a whitish reflex which I thought might mark the wound of exit. Vision = fingers 15 feet. A large temporal scotoma was present. Conservative treatment was adopted. The swelling and chemosis gradually subsided. Pain was never a prominent symptom, after a few days being absent altogether. A small amount of atropine was sufficient to maintain dilation of the pupil. The hemorrhage gradually became disseminated through the vitreous in streaks and flakes. Vision soon improved, varying during the next two months from 15/40 to 15/100, according to the position of vitreous opacities. There has remained a permanent scotoma embracing the temporal field from its normal periphery to within 50° of the fixation spot, enduring up to the present time. But by February 22, 1902, the opacities had entirely disappeared from vitreous and central vision became permanently normal. With the ophthalmoscope there was visible in the extreme nasal portion of the fundus the sharply defined edge of a chorio-retinal coloboma which passes forward beyond the limits of ophthalmoscopic vision. This was prob-

ably the point of exit of the shot, its direction having been from in front and the left backward to the right. About six weeks after the accident, when the external parts had regained their normal condition, by pressing the tip of the finger between the nose and the eye and directing the patient to look as far as possible to the left, the shot could be felt lying upon the sclerotic just back of the equator, moving as the globe moved. It remains there to this day. At my request Dr. Adolph Alt saw this case about eight weeks after the injury. At that time the details of the fundus were invisible on account of opacities of the vitreous, the external wound had healed, the shot could be felt in the position above described. Vision was 20/40, with temporal restriction of the field, and it was Dr. Alt's impression that the shot had plowed its way through the sclerotic, cutting the choroid and retina without entering deeper into the eye ball. But my opinion is that the shot actually passed within the vitreous cavity and out again. For in the first place, at the initial examination there was a round, smooth hole on the sclerotic. There was no linear cut or tear or furrow; simply a clean, smooth hole, such as could not well be mistaken; but for obvious reasons I refrained from probing. The tension was slightly minus. Again after the opacities cleared away the edge of a coloboma could be seen at a position near where it was possible for the shot to have made its counter puncture (though this might have been due to rupture of the choroid without perforation).

CASE IV. This and the next case are important in the same connection, though some data are lacking. G. M., colored, age forty-eight, had lost the sight of his right eye eighteen years ago from a shotgun explosion; left eye not injured. But in April, 1896, this eye was made blind by a small shot fired from a shot gun. I saw the eye in October, six months after the injury. There was a scar in sclerotic. Anterior media were clear, but vitreous full of opacities. Vision = fingers at 1 foot in a small portion of the temporal field only. When I saw him again eighteen months later the vitreous had cleared up. There was a defect in the retina and choroid about half a disk diameter in width and three or four disk diameter in length, extending upward and temporarily from just above the macula. Its borders were uneven and pigmented and the sclerotic was visible through the most of its extent as a broad white streak, interrupted in places by irregular pigmentation. Without doubt this was the point of exit of the shot. Vision was 15/100, with scotoma corresponding to the coloboma, though somewhat larger in proportion.

CASE V. I. M. D., age fifty-three, a watchman, while in discharge of his duty received a charge of bird shot in his face on the 29th of September, 1898. The left eyeball was entirely destroyed. One shot entered the right eye. I saw the case November 25th, two months after the injury. There was then visible a black spot about 2 mm. in diameter in the sclerotic, $3\frac{1}{2}$ mm. directly below the lower border of the cornea. This was slightly elevated and looked very much like a small shot lying in the sclerotic under the conjunctiva. In fact, the patient was sent to me to have this supposed shot removed. It was only a hernia of the uvea through a defect in the sclerotic. It was perfectly soft and easily indented with a probe and collapsed under slight pressure, returning promptly when pressure was removed. The lower portion of the iris was drawn downward toward this spot behind the limbus, giving the appearance of an iridectomy downward. Other portions were free. The anterior chamber and lens were normal, but the vitreous was full of opacities. Vision = fingers two feet. The conclusion was that the shot entered at the spot described, well below the lens, but dragged the contiguous ciliary body and iris inward under the lower border of the lens, where it was incarcerated. It was my privilege to examine the case again in 1902, nearly four years later, when vision was improved to 20/200 and the fundus could be fairly well seen, but nothing like a foreign body or wound of exit could be made out. The eye had been quiet and free from inflammation. In July of 1903 the patient returned with a partially developed cataract which resembled the ordinary senile type. Vision = to fingers only at one foot, still without inflammatory symptoms. Perception and projection good. It is most probable that the shot in this case passed through the eye, but whether it remained in the eye or not the fact remains that for nearly five years fairly useful vision was retained without inflammatory symptoms.

These cases are reported to encourage in suitable cases the adoption of a reasonable conservatism in the treatment of this class of cases in which the wound has been made by a body more likely than any other to have passed through the eyeball or glanced around it.

A SIMPLE PHOROMETER ADAPTED FOR USE AT THE READING DISTANCE.

BY WILLIAM A. MARTIN, M. D.,

SAN FRANCISCO.

(Illustrated.)

The simpler the instruments we have to work with the more likely we are to use them. The phorometers with which I am acquainted are all more or less complicated and being complicated, expensive, not a small fault. The style of instrument commonly used consists of an arrangement of prisms, which separate the images seen by the two eyes, which have to be adjusted accurately and have to be controlled as well by levels; added to these are various styles of distortion lenses which serve to distinguish the images seen by the eyes, one from the other. In order to use these instruments, the patient has to be moved to another position in the examining room or the instrument has to be moved to the patient, as most of us are not favored with unlimited space in our consultation room, so that if every patient is subjected to a routine examination, as he should be, a certain amount of time is consumed that is valuable to the busy oculist.

For a number of years past in examining to find if a patient is possessed of binocular vision, I have used a method original with myself, so far as I know, but so very simple that it must have occurred to others, although as yet I have failed to find it described in any of the text-books consulted. The method consists in a sheet of cardboard held perpendicularly between the two eyes and another piece of cardboard with a line across it, held in front of the eyes at the distal end of the perpendicular card. If the line is only seen on one side of the perpendicular it is quite evident that one eye is amblyopic or deviated. In making such an examination one day, the patient remarked that he saw two lines, one on either side of the card, and that one was higher than the other. I examined further and found I had a very simple method of determining hyperphoria at the reading distance, one of the difficulties with which I hitherto had to contend. From this simple mechanism has evolved the phorometer herewith described. The instrument is adapted solely for the reading distance, the one here is arranged for a distance of thirteen inches. It is not to displace any other instrument, but is to determine quickly any heterophoria at the reading distance. Other more exact instruments can then be used for determining accurately the amount, if further examination is deemed necessary.

The instrument differs from a stereoscope in that the fields overlap. It consists of a perpendicular plate (A) and a horizontal

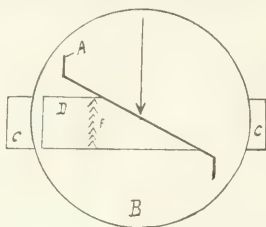


plate (B). The horizontal plate (for facility in description hereafter called the foot plate) consists of two sheets of thin metal riveted together, with a slot between. In the slot there is a slide (C). The slide shows below the horizontal plate in the window (D), but is hidden above. On the side of the slide facing the patient is a red line (F) or any other arbitrary symbol, which the patient is instructed to place even with the white arrow which is on the opposite side of the perpendicular plate. To the back of the slide is attached a tangent scale computed by Dr. Eaton for a distance of thirteen inches, calculated for the actual deviation of prisms up to 16° , so that the number on the scale represents the prism as found in the test case. The amount of heterophoria is read from the scale through a small window in the back of the foot plate similar to that on an ophthalmoscope. I have not found it necessary to attach any leveling apparatus, for with the aid of the various right lines on the foot plate patients with ordinary intelligence adjust the position of the instrument correctly, and the oculist can control it by the aid of a straight line which is marked on the back of the foot plate for such a purpose. However, if found necessary, a clinometer or small plumb line can be attached and absolute accuracy of position be obtained.

DIRECTIONS FOR USE.

The arrow is to be kept before the right eye, vertical for lateral and horizontal for hyperphoria, and the slide before the left eye. When used for lateral phorias the black scale represents esophoria and the red scale exophoria. When used for vertical phorias the black represents light and the red left hyperopia. If used in the opposite way, of course the readings would be opposite. From an intelligent patient one can soon elicit which of the eyes deviate laterally, according as to which image seems displaced. The instrument



A Simple Photometer (Martin).

is made of aluminum and weighs less than eight ounces and is not cumbersome, so that it can be kept alongside of the test case always ready for use.

The instrument has been skillfully made under my direction by Hirsch & Kaiser, whom I wish to thank for the careful attention to the smallest details.

135 GEARY STREET.

PRIMARY CHANCRE OF CONJUNCTIVA FOLLOWED TEN
YEARS LATER BY INTERSTITIAL KERATITIS
OF THE SAME EYE.

BY F. W. MARLOW, M. D.,
SYRACUSE, N. Y.

Although I can add little to the statement contained in the above title, the bare facts seem worth recording.

I have seen this patient on two occasions only. The first about ten years ago, when at the age of fifty-four years she was referred to me by another physician on account of the condition of her right eye. She was taking care of an infant known to be the subject of inherited syphilis.

On inspection a characteristic chancre was seen in the lower conjunctival retro-tarsal fold of the right eye. The pre-auricular and sub-maxillary glands were enlarged.

I prescribed for her in the usual manner, but neither saw nor heard more of her until within the last few months, when she presented herself on account of an inflammation of the right eye which had existed for two months. Examination revealed a typical interstitial keratitis; the whole cornea being occupied by diffuse, patchy haze, while the upper part, perhaps one-fifth, was covered by the characteristic salmon patch of Hutchinson. The left eye was unaffected.

The scar of the chancre was plainly visible in the conjunctiva. She was again prescribed for, and directed to come back for observation, but she has not done so.

CORECTOPIA AND ECTOPIA LENTIS. EXTRACTION OF THE OPAQUE AND DISLOCATED LENS.

BY CASSIUS D. WESCOTT, M. D.

CHICAGO, ILL.

In December, 1900, I was consulted by Mr. J. G. B., of Indianapolis, Indiana, a missionary, fifty-three years of age, with regard to the possibility of improving his sight. He said that he had never seen well far or near, and that thirty-five years ago he had consulted Dr. Williams, of Cincinnati, who had prescribed atropin, which had been used daily since. The accompanying photograph, although unsatisfactory, shows fairly well the condition of the eyes. The lids, conjunctiva and cornea, were perfectly normal. In the left eye no pupil could be seen until the upper lid was raised, disclosing a small, oval pupil displaced upward and outward to such an extent as to be entirely covered by the upper lid, when the eyes were directed straight ahead on a level. The pupil measured one millimeter and a half in the vertical diameter, by one millimeter in the horizontal. The pupil in the right eye was, possibly, a trifle larger and displaced not quite so much, but in the same direction—upward and outward. The irides were both decidedly tremulous, but there was no other visible abnormality about the eye. Tension was normal. The small pupils showed absolutely no reaction to light, and repeated applications of homatropine and cocaine made no change in their size. The patient had never been able to read with his left eye. With the right he read Jager No. 4 at five inches, slowly. His distant vision with the right eye was equal to counting fingers at five or six feet; with the left somewhat less. The patient had been induced to consult me chiefly because of the fact that his atropin solution, which he said contained six grains of atropia sulphate to the ounce, no longer affected his pupils, and his sight was becoming less and less because of their getting smaller and smaller. He had consulted many ophthalmologists in various parts of the country, but operation had always been discouraged.

Hoping that the lens, even though dislocated, as I believed it to be, was clear, I advised that an iridectomy be made, down and in, upon the left eye. This was done under cocaine anesthesia December 26, 1900. A good sized incision was made at the limbus with the keratome, the iris was caught high up, drawn well out and cut in such a way that the resulting triangular coloboma had its apex in the small, dislocated pupil. No accident occurred, and no technical difficulty was experienced in making the iridectomy; but imme-



Corectopia and ectopia lentis. W. Scott

diately after cutting the iris a small amount of vitreous escaped and was cut off. The pillars of the coloboma replaced themselves, atropin was instilled and a double bandage applied for two days. On the third day the wound had apparently healed; the atropin was continued and a single bandage applied. On the fourth day the patient accidentally struck his eye a smart blow with his hand, breaking open the wound. An hour or two after the accident the conjunctiva was œdematous, there was a blood clot in the wound, and, by oblique illumination, it could be seen that there was considerable blood within the globe. The eye was irrigated with warm boric solution, atropin instilled and a double bandage applied. As there was no pain and no increase of redness on the following day, a single bandage was substituted, and the atropin continued. The wound did not close, however, a tag of vitreous protruded, and a week later the wound was carefully cauterized with the actual cautery. In another week the eye was quiet and the anterior chamber restored. A careful examination of the eye at this time showed that the lens was dislocated downward and opaque in the lower half. There was no improvement of central vision because of the cloudiness of the lens, but the field was increased, and the patient stated that everything was very much brighter.

February 22, 1901, an iridectomy was made upon the right eye. A section was made above with the keratome, the iris grasped below and to the inside of the pupil and only a little cut off; the idea being to get a small but more centrally located pupil, if possible. The result was a nearly round pupil, three millimeters in diameter, but above the center. After the excision of the iris, a small bead of vitreous escaped, but gave no trouble, and the healing was uneventful. One week after the operation the vision of the right eye with approximate correction was 6/30.

On the 5th of March, 1901, both eyes being quiet, the dislocated lens was extracted from the left eye. An ample incision was made in the limbus below, a hook introduced into the vitreous and the lens brought forward. The hook cut through as the attempt was made to draw the lens into the incision, and it was delivered by the usual manipulation with spatula and spoon. A moderate quantity of vitreous followed the escape of the lens, but gave no trouble, and the wound healed without undue reaction. As the lens escaped, the iris to the outer side of the coloboma folded back upon itself, leaving a much wider pupil than I wished; but it was clear and the immediate vision was good. A double bandage was applied, and five days

later the wound was closed and the patient was given one eye, but instructed to remain quietly in bed. In spite of these instructions, he got up and went to the bathroom alone, and took a partial bath. A restless night followed, and in the morning he awoke with pain in the eye. On examination the wound was found to be open and vitreous protruding. The double bandage was reapplied and atropin continued. Two days later the vitreous was cut and the wound cauterized. The next day the eye was much injected and vitreous was again protruding. The vitreous was carefully cut off; the aqueous escaped and the lips of the wound fell together. Two days later the eye was painful and tender, the iris dull and vision reduced. This was the beginning of a violent irido-cyclitis, which was fought for three weeks with rest in bed, fomentations and atropin locally, potassium iodid, sodium salicylate and calomel internally.

The eye finally quieted down, and on April 9th I made the following note: L. V. 6/30 with $+3.25$, $+8.00$ Cyl. Ax. 180° . On April 24th the vision had increased to 6/22, and I ordered the correction in No. 4 Smoke.

July 8th I ordered the following correction: L. $+4.00$, $+7.00$ Cyl. Ax. 180° , which gave 6/15 vision. No glass enabled the patient to read as well as he could with the other eye at this time, but on October 19th he was given $+7.00$, $+5.00$ Cyl. Ax. 180° , which has proved very satisfactory for near work.

An examination of the extracted lens shows it to be smaller than normal and misshapen.

The patient was seen January 6, 1904. He is still enjoying good sight, and will have the lens extracted from the right eye at the first convenient opportunity.

• CORNEAL-ULCER NOTES.

H. GIFFORD.

OMAHA.

On the Substitutes for the Saemisch Cut and the Theory of Its Action.

Since the introduction of the galvano-cautery and the more efficient chemical caustics there can be no doubt that the necessity for the Saemisch cut or some of its substitutes arises much less frequently than in former days. But the tendency to mention it slightly or not at all, which is evident in some modern text-books, is to be regretted, for every now and then a case occurs in which

nothing stops the march of the ulcer except the spontaneous or artificial perforation of the cornea, and experience shows that the efficacy of this perforation is directly proportionate to the length of time during which the aqueous continues to leak out. The special advantage of the Saemisch cut over most of its substitutes is due, first, to the extent of the opening and, second, to the fact that it is made through tissue thinned and partly disorganized, so that the closure of the wound is delayed as long as possible, and when it occurs, the union of the thinned edges is easily broken up by the intra-ocular pressure. The main objection to the classical Saemisch cut (reaching clear across the ulcer from sound tissue into sound tissue), namely, that it is so apt to produce a large anterior synechia, is a valid one, and has led a number of writers who evidently believe as I do in the immense value of keeping the anterior chamber constantly open, to add to the burning of the ulcer with the cautery, the puncture of the chamber with the same instrument. This I believe to be the method of election in all the severer cases in which a moderate sized cut through the thinnest part of the cornea fails to keep the chamber open; but as this produces a denser scar and more or less distortion from the actual loss of substance, I believe it is best, except where the case is desperate, to scrape the ulcer thoroughly and apply one of the milder caustic acids, concluding with a cut through the floor of the ulcer, reopening the latter every twelve hours at least. If after twenty-four hours, the progress of the ulcer is not certainly stopped, the edges of the cut should be cauterized so as to open into the anterior chamber, and if this, in connection with a pressure bandage, does not produce constant leakage of the aqueous or a certain cessation of the infection, enough tissue should be burned out to insure such leaking. I have time and again seen ulcers which crept on in spite of chemical and galvano-cauterization, incision and galvano-puncture, stop at once when a large enough opening was burned to keep the chamber constantly open.

Now regarding the manner in which the Saemisch cut, or some efficient substitute for it, works, part of the effect may be due to the reduction of the tension on the corneal tissue, though why a reduction of tension should tend to check an infection is not so easily explained. The process may be similar to that which occurs when an abscess is opened, though as a matter of fact I do not remember to have seen a good explanation of the way in which opening an abscess checks its progress. The effect can not be due simply to the evacuation of the germs, since in any abscess cavity for some hours

or days after it has been opened an abundant supply of the original germs can be found. It must be that the mere pressure on the walls of the cavity tends to paralyze the defensive and healing powers of the cells; and so with the cornea, the cells may be able to defend themselves better under a lower tension than the normal.

Another factor, however, may perhaps be found in the great increase in the albuminous constituents of the aqueous which occurs when the latter is formed under these abnormal conditions. This albumin, as shown particularly by the work of Wessely and Roemer (*Deutsch Med. Wochenschrift*, 1903, 7 and 8, and *Archiv für Ophthalmologie*, LVI, 3), contains at least some of the alexins or natural antitoxins and bacterolysins of the blood and it requires no great stretch of the imagination to conceive how these products, continually flowing over the ulcer, may exercise a powerful influence in checking its progress.

ON THE USE OF TRICHLORACETIC IN THE TREATMENT OF CORNEAL ULCERS.

I can heartily indorse the recommendation by Fox and Bulson of trichloroacetic for the milder forms of ulcer. I was led to use it by witnessing the slight reaction which follows its use in the nose, but instead of using it in the 20 per cent solution I have used it practically pure; that is, if the crystals have not already deliquesced I add from time to time a few drops of water to the small bottle in which I keep them, and into the mixture thus resulting dip a very finely pointed cotton swab with the loose fibres trimmed off, and with this touch the ulcer thoroughly. Before doing this, however, I always touch the swab two or three times to my thumb nail to be sure that any excess of the liquid is removed, and I am especially careful about this, since I have occasionally made some of the normal cornea unpleasantly white from having too much liquid on the swab. As a rule, very little reaction follows these applications, and in some very obstinate cases of superficial ulcers, where from their central position I disliked to use the cautery, I have repeated the procedure every day for a week or more with decided benefit. Since using the trichloroacetic I have almost entirely discontinued the use of iodine for corneal ulcers. It is decidedly more effective; it is followed by less pain and I can not see that the scars are any denser. In the severer form of ulcer, however, with deep-seated, yellowish infiltration of the borders, it is not to be relied upon even after thorough scraping. Used after scraping, it

will check many such ulcers, but if after a single application of the kind it is evident on the next day that the infection continues, or in cases where, when first seen, it is evident that the ulcer is rapidly progressing, it is better, I am sure, to use the galvano or Paquelin cautery.

ADVANTAGES OF THE PAQUELIN CAUTERY.

It is my impression that the Paquelin cautery is not used enough in eye-surgery. For many years I used one of the small forms made for the eye to the exclusion of the galvano-cautery. Later, after the installment of a modern transformer, I neglected the Paquelin almost entirely, and am convinced that in the severer forms of corneal ulcers, where the yellow infiltration extends through nearly the entire thickness of the membrane, I did not get as good results with the ordinary fine point of a galvano-cautery as with the Paquelin. This, I suppose, is due to the greater penetrating power of the latter. One can, of course, burn as deeply as necessary with the galvano-cautery; all the same one is not so apt to do it as with the Paquelin. The writer, at least, hates so to burn corneal tissue that he is apt, after one application of the cautery all along the ulcer's edge and floor, to stop; and one application with the Paquelin certainly goes farther than one with the galvano-cautery, unless the wire used is much heavier than that generally put into eye-points. Another disadvantage of the galvano is that for a deep effect it has to be so much hotter than the Paquelin that it dazzles the eye of the operator and makes its accurate use more difficult. In the cauterization also, which should always follow the removal of epitheliomata from the cornea and conjunctiva; in burning out the stump of the optic nerve after the evisceration of the orbit; and in the few cases in which it is necessary to destroy the tear sac the Paquelin has decided advantages. Those who already have the galvano-cautery may hesitate about investing \$20 or \$30 in one of the Paquelins, which the surgical houses supply, but since the advent of pyrography nearly every picture store carries an apparatus costing only from \$3 to \$5 which answers admirably for the eye, and a firm in Philadelphia makes such a variety of points that nearly every taste can be suited.

THE OPHTHALMIC RECORD

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EDITORIAL.

THE RELATION OF THE OPHTHALMOLOGIST TO THE GENERAL PRACTITIONER.

The medical profession of the United States and Canada comprises about 120,000 individuals, of whom possibly 3,000 are more or less skilled in the diagnosis and treatment of diseases of the eye. Of these about half restrict their practice to ophthalmology and the other 'ologies of the head.

I wonder how many of them realize that their relationship to the practitioner of general medicine should be that of a helper, in fact an assistant? The greater the consultant, the more he owes his position to the help of his fellow practitioners, to the patients they send to him, and the more he should feel grateful for their help in the making of his success. He should remember that in many cases his advice is sought but for the purpose of a skilled diagnosis in determining a line of treatment which may as well be carried out by the family doctor as by his more expensive hands. The higher fees of the specialist are not alone determined by his ability to ask and attain the same, by his skill in diagnosis, treatment and his experience, but are demanded by reason of his very much larger and expensive medical establishment, evidenced by the large array of special instruments, assistants and other time-saving but money-making helps, which he must maintain in order to keep up with, if not a little ahead of, the "procession."

Certain delicate cases and nearly all operations on the eye belong entirely to him and should not be attempted by the general practitioner. Correction of errors of refraction is a medical procedure and should be done only by a doctor, preferably an ophthalmologist, and is really one of the most difficult parts of his work. It is certainly questionable if a person who looks through an ophthalmoscope once in a while, even after having had several years of study and practice in the method, may be trusted to make a satis-

factory diagnosis after an examination of the fundus, and, therefore, a reliable opinion of the condition of the depths of the eye can only be given by an active oculist.

By such delicate means of diagnosis we become of the greatest aid to the general practitioner, for 10 per cent of the cases of nephritis, 20 per cent of diabetes, a perceptible percentage of heart lesions and a much larger one of diseases of the nervous system may be diagnosed by the oculist before the general practitioner can make up his mind as to the reliability of evidence afforded by the general symptomatology. Even after a diagnosis of such disease has been assured by a general inspection, examination of the eye often reveals data of much moment in determining the gravity of the affection, and from this a definite diagnosis is assured and satisfactory prognosis and treatment may be evolved. How far the general practitioner should go in the treatment of pure eye diseases is to be limited by his own conscience.

Of the 3,000 physicians I have estimated as practicing more or less in the domain of diseases of the eye, how many could be called ophthalmologists in the true sense of the word? I should say about 25 per cent, this figure being reached by a calculation of the "reading men" in this part of our profession—those who take one or more special as well as general medical journals, and who buy books. When we come right down to it, approximately the same percentage holds good in the general profession, for only about one in five maintain in more or less degree the character of a student, which the true doctor should be. While the ophthalmologist limits his acceptance of cases to those of diseases of the eye, he should not by any means be a simple "eye doctor," for nearly all eye diseases require general treatment for a cure. He must not only have skill as regards his own specialty, but be a surgeon, a neurologist, a dietitian, a dermatologist and a syphilographer of wide reading, but also have a working knowledge in all the other branches of medicine, even of gynecology, although he should not practice "below the belt." Only he is successful who unites in himself all these qualities, besides those of a gentleman, and remembers that his relation is that of a helper, in fact an assistant to the general practitioner, whose preserves should not be infringed upon.

H. V. WÜRDEMANN.

REVIEW.

Pupillenstudien. By L. BACH, of Marburg. Abstract by E. W. CLAP, M. D., of Boston, Mass.

L. Bach, of Marburg, in the current *Von Graefe's Archiv* (Vol. LVII, No. 2), gives the results of systematic examination of the pupils in a great many cases. He thinks in general not enough attention is paid to the pupil in view of its diagnostic importance. We should have a simple and trustworthy method of examination and of recording the results; each of several methods may be equally good, but it is better to keep to one method of examination which has shown itself practical. Bach proceeds as follows; After a brief comparison of the pupils by daylight, the exact investigation is made by artificial light, using an Argand gas burner placed a little behind the head of the patient, while the patient is instructed to look into the distance over the head of the observer seated in front. The observer then reflects the light from a concave ophthalmoscopic mirror from a distance of about 40 cm. into the eyes alternately. Then the light is brought in front of the patient a little to one side, about 35 cm. off. The light reaction is tested by throwing a cone of light with a 15 D. convex lens at 8 cm. on the pupil and observing the direct and the indirect reaction. Then it is best to try the same reaction, throwing the light on the other eye. If the pupil is very small one eye may be covered while trying the light reaction of the other, thus giving a larger pupil.

For observing minute differences in the pupils a Welsbach burner in a room papered with white paper is useful, for the corneal reflex is avoided, and the light is better than daylight, in that it is always the same. Bach has practically given up the use of daylight, for the consensual reaction can be much better taken with focal light; the intensity of daylight varies, especially in a room with several windows; the eyes are more apt to be moved and the pupil influenced in that way, and, lastly, the corneal reflex is annoying by daylight.

SIZE OF PUPIL. INEQUALITY OF PUPIL.

The size of the pupil is constantly changing, due to the antagonism of the two muscles of the iris, the sphincter and the dilator. Very varied influences from every part of the body react on these muscles; the sphincter reacts to light (in proportion to its intensity), and in convergence, and frequently on closing the lids. The dilator receives almost constant stimuli, especially sensory

and psychical. The size of the pupil is dependent on (1) age, small in the new born, large in youth, with a gradual decrease into old age; individual variations occur; (2) sex; females, especially the more neurotic, have larger pupils than males; (3) refraction; the hypermetropic, especially the highly hypermetropic, eye is apt to have small pupil; in emmetropia a wider pupil is the rule, while in myopia the pupil is larger still, but exceptions are common, even in anisometropia the hypermetropic eye may have a larger pupil than the myopic one; in a dim light myopes frequently have widely dilated pupils; (4) visual acuity; in as far as loss of acuity is due to defects in retina, nerve, chiasm, optic tract or ext. geniculate body, the pupil is dilated. Loss of acuity or even blindness due to defect in optic radiation or cortex does not affect pupil: pupil may be larger on the side of the greatest impairment; (5) unequal development of the eyes, especially of the iris, is a very frequent cause of unequal pupils; the reactions may be normal; often there is one-sided development of the face and orbit; (6) difference in size of pupil is frequently congenital.

Transient inequality of the pupils may be due to unequal amount of light on the eyes. Anisocoria may also be from irritation or paresis of sympathetic in supra- or infra-orbital neuralgia pain often causes a dilated pupil, especially marked on the painful side; a touch on the affected region will dilate the pupil, which may be permanently larger on one side. An irritation of the trigeminus fibers to the eyeball causes contraction of the iris. Paralysis or irritation of the sphincter pupillæ leads to inequality of pupils. Irritation of ciliary ganglion contracts, while paresis of it dilates, the iris.

The causes of unequal pupils may be summed up as follows:

- (1) Unequal illumination of two eyes.
- (2) Unilateral or a bilaterally unequal disturbance in the centripetal path.
- (3) A similar condition in the centrifugal path.
- (4) Congenital anomalies, as a rule due to faulty development of iris.
- (5) A unilateral or a bilaterally unequal disturbance of sympathetic.
- (6) Variations in refraction.
- (7) Affections of the trigeminus.
- (8) Impairment of reflex inhibition arc or center.
- (9) Unequal reflex from closing of lids.

The light reflex of the pupil starts in the retina and is not confined to the macula; it varies within certain limits with the intensity of the light, and the amplitude of the contraction varies in individuals. In the young, and especially females, the reaction is quick and extensive. The pupils of intelligent persons often react more promptly than those of the dull. The view that direct and indirect light reflex is equal, that both pupils are the same size, even with unequal illumination, is a wrong one. To show this the stronger light should be allowed to fall on one pupil for some time, and then a difference can usually be noted.

Haab's cortical reflex can not be demonstrated in everyone and has not been shown as yet to have any diagnostic practical bearing. On closing the eye it tends to move up and out as a rule, and the iris clearly contracts. This certainly occurs in normal individuals, though there are great variations, and the reaction is especially marked in paresis of the sphincter and reflex rigidity of the pupil to light.

This phenomenon may be one-sided or of different intensity on the two sides.

The convergence reaction may be tried by daylight or artificial light by having the patient fix on the forefinger held 20 cm. in front of and slightly below the eyes. Bach thinks that this reaction is chiefly (if not exclusively) due to the impulse to convergence. The promptness of the reaction and the amount of narrowing shows individual variations. The amplitude of the narrowing depends, of course, on the size of the pupil to start with, but the small pupil of the aged, in paralysis of the cervical sympathetic, and in tabes shows clearly a further contraction. In emmetropia and in hypermetropia in general the reaction is prompter and more marked than in myopia. Decrease or absence of convergence reaction should make one think of paresis or paralysis of the sphincter muscle of the iris. Absence of convergence reaction is frequently seen in general paralysis, more rarely in uncomplicated tabes. It is due either to paralysis of the sphincter or to failing impulse to convergence.

Disturbances of light reaction arise from: (1) Impairment of the centripetal reflex path; *i. e.*, retina, nerve, chiasm, optic tract or its connection with the Ant. Copp. Quad. A lesion between ext. geniculate body and the occipital lobes or in the optical cortical centers causes no interference with the light reaction. (2) Impairment of centrifugal reflex path; *i. e.*, fibers in corp. quadr. cells for sphincter of pupil in oculo-motor nucleus, ciliary ganglion, ciliary nerves

to sphincter of iris. (3) Lesion of inhibition fibers or center, the existence of which the author's experiments make highly probable. (4) In sympathetic affections (rare).

Hemianopic pupillary reaction is absence or decrease of the light reaction from one-half the retina while the other half responds. This may occur in: (1) Changes in eye itself, causing part of the retina to fail in function. (2) In partial lesions of the nerve, usually with hemianopsia. (3) In affections of the chiasma, usually bilateral with crossed hemianopsia. (4) Lesion of tracts, usually bilateral with homonymous hemianopsia. (5) Lesions in Ant. Corp. Quadr. and region of nucleus lateralis. (6) In disturbances which affect the neuron from the ending of the pupillary fibers in Corp. Quad. to the ciliary ganglion.

Hemianopsia without hemianopic pupillary reaction is observed in lesions of the ext. geniculate body, in lesions of the optic radiation and in affections of the occipital lobes. Hemianopic pupillary reaction has been denied and Bach thinks it may exist, though he has not found an undoubted case himself.

Reflex immobility of the pupil to light should mean that neither directly or indirectly does the pupil react to light, but it does promptly contract to convergence. The pupil remains the same size in light and darkness. All degrees are found, from perfect reaction to complete immobility. It is, as a rule, bilateral, but differences in the two sides occur. Usually pupil is small and the myosis may be greater on one side than on the other. Often the pupil is not perfectly round. Even after years all the other functions may be normal.

Convergence reaction, as a rule, is normal, while reflex rigidity to light is present. Even in cases of myosis of high degree it is clearly present; the contraction in these cases may make the pupil almost disappear. After reflex rigidity to light has persisted a long time, immobility of the pupil with convergence may supervene, especially in cases of general paralysis. Cases of tabes are met with in which reflex rigidity to light in one eye is associated with absolute immobility of the pupil and paralysis of accommodation in the other eye.

Paradoxical reaction. Occasionally one observes in so-called reflex rigidity a slight dilatation of the pupil on illuminating the eye. Bach has twice seen this in tabes. The lid-closing reaction may cause an apparent paradoxical reaction. If a patient during the testing winks repeatedly just before we try the light reaction the

pupil, which has become small from the winking, may dilate as we throw the light into the eye.

Reflex rigidity to light occurs almost exclusively in tabes and general paralysis, and may precede all other signs by many years. The place of the lesion in reflex rigidity has been much discussed, often without any regard for the anatomy of the brain. A critical examination of the literature and reports of cases leads Bach to assert that there is no clinical or pathological evidence connecting the Corp. Quadr. with disturbance in pupillary reaction, but clinical experience, anatomical examination and experiment point to localization of the trouble in the cervical cord or in the spinal end of the *fossa rhomboidalis*.

EXPLANATION OF MYOSIS WITH REFLEX RIGIDITY.

The view that the myosis is due to paralysis of sympathetic fibers must be given up. Against the view of tonic contraction of the sphincter is the prompt action of cocaine, the persistence of the condition for years, the complete reaction to convergence and the failure to dilate in the dark. Bach holds the following to be the most probable explanation: At the spinal end of the *fossa rhomboidalis* there is an inhibition center for contraction of the pupil as well as an inhibition center for dilatation of the pupil. By an irritation of these centers the reflexes are inhibited, which lead either to contraction or dilatation of the pupil. Myosis and not medium width of pupil will be present, because the sphincter is stronger than the dilator. The fact that the pupil in reflex rigidity does not always have the same size may be referred to changing amount of irritation of this inhibition center.

Recently a peculiar condition of the pupil has been described essentially as follows: In pupils rigid to light there occurs a slow contraction on convergence, which lasts several minutes or very gradually dilates after the convergence has ceased. Bach has seen two such cases, but so few are so far known that no conclusions can be drawn from them.

Behavior of the pupil in various pathological conditions of the eye.

BEHAVIOR OF THE PUPIL IN VARIOUS PATHOLOGICAL CONDITIONS OF THE EYE.

Maculae cornea cause in themselves no change in size and light reaction of the pupils.

Cataracts, uncomplicated, senile, do not affect the pupillary

width as a rule, or the light reaction. In stage of swelling the iris may react a little slowly and the pupil be slightly larger than its fellow, or the reverse may be true.

Paralysis of the sphincter muscle of the iris causes dilated pupil, but not to the maximum. In complete paralysis individual variations occur. In one-sided cases the difference, marked in the light, may disappear in the dark. As a rule the dilatation is equal in light and dark.

Paralysis of sympathetic causes narrow pupil, which reacts to light and convergence; sensory and psychical stimuli cause the pupil to dilate.

Irritation of sympathetic; pupil is dilated, light and convergence reaction present unless irritation is extreme.

Refraction; one-sided hypermetropia of high degree may cause a smaller pupil on that side, and in high myopia the reverse may be true. These data are not constant.

Strabismus concomitans; pupils equal and reaction normal on both sides, even when acuity of one eye is greatly reduced.

Choroiditis disseminata, if the visual acuity is normal, does not affect the pupillary reaction. In a case of areolar choroiditis, where a large sector of the field was defective, it could be shown that a weak pupillary reaction followed, illuminating that area.

In chorioretinitis, involving macula with considerable loss of central vision, the light reaction is usually feeble.

Retina. Changes in blood system, especially arterial vessels, with consecutive atrophy cause decrease in light reflex. When blood supply of retina is cut off by plugging of central artery the light reflex disappears with the loss of sight. If one or more branches are affected, light thrown on the affected area causes a poor reaction. Hemorrhages in macula act like central chorioretinitis, though two cases of fresh macular hemorrhage were noted where no change in size or reaction of pupil could be made out.

Separation of retina gives a slightly enlarged pupil when no complication is present. In a few cases it could be determined that the reaction was less prompt on throwing the light on the separated area. In some cases where the vision was very poor the light reaction was prompt.

In retinitis pigmentosa the light reaction was decreased, and more so when the light was thrown on the periphery than when it was thrown on the macula.

Optic neuritis. At first the pupil is frequently dilated, and light reaction varies, not always with the disturbance to vision. Even when visual acuity is good the light reaction may be nearly absent. When acuity is different on the two sides, one does not always find the pupil of the worse eye the larger. When there is tumor of the orbit the size and reaction of the pupil may be influenced by that, by way of ciliary ganglion or nerves to inner eye muscles.

Retrobulbar neuritis has, as a rule, the pupil of the affected side slightly larger. The direct reaction to light of the affected eye and the indirect reaction of the other eye is decreased. In one case an increase of light reaction preceded by three days an increase of visual acuity.

Optic atrophy. In bilateral complete atrophy the pupils are dilated and do not react to light. Occasionally, after long duration of the atrophy, the convergence impulse is less effective and the convergence reaction is slight and transient. If the pupils are average size or smaller in atrophy, then probably tabes exists, or, rarely, irritation of the third nerve at the base of the brain. In one-sided atrophy the pupil of that side is often larger.

Glaucoma. The well-known dilated sluggish pupil was of value in two cases, while the central vision and field were still normal.

REPORTS OF SOCIETIES.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Thursday, January 28, 1903.

Charles Higgins, F. R. C. S., vice-president, in the chair.

Mr. W. H. H. Jessop read a paper on *Cases of Proptosis*, and described two cases.

The first was one of syphilitic origin, the patient being a man who suffered from severe headache with swelling in the right temporal region and protrusion of the eyeball. He was treated with iodide, etc., but without much relief. The vision was reduced to counting fingers. There was slight ptosis, pupil 4 mm., inactive, optic disk pale and a discharge from the nostril. An incision was made into the swelling and dead bone was discovered. This gave slight relief, but the pain soon returned and Mr. Waring then undertook a very extensive operation and removed a great deal of necrosed bone, including the great wing of the sphenoid. The patient recovered and was much relieved.

The second case was that of a lady who when first seen had normal acuteness of vision, but she subsequently developed retrobulbar neuritis and supraorbital neuralgia. The symptoms increased with proptosis, and tumor of the optic nerve was diagnosed. Sir Victor Horsley operated and the growth was proved to be an endothelioma. The patient is much relieved. Mr. Jessop referred to other cases and emphasized the great relief afforded by the operations.

Mr. C. Brooksbank-James, who read a paper on *A Plan of Treatment in Some Cases of Asthenopia*, said that he had noticed how rare it was to see myopia developed in watchmakers and those who used a single glass for magnifying their work, and applying the same principle to other cases, he had come to the conclusion that the development of myopia might be arrested by similar means. He mentioned the case of a patient who had -1.5 D. of myopia and for this he ordered a glass of $+1.5$ D. to be used for one eye only, so that convergence might be prevented. The myopia did not increase during many months while using this method though it increased .5 D. when the ordinary myopic correction was used.

Mr. C. Worth thought that the cases in which pain and fatigue were present there was probably hyperphoria as well.

Mr. Bishop Harman did not consider that the mere closing of one eye would prevent convergence when looking with the other eye

at a near object. He thought that it would much interfere with education if this plan were adopted.

Mr. Beaumont, who read a paper entitled *A Note on the Eye Symptoms of Rheumatoid Arthritis, with special reference to the Fields of Vision*, said that in spite of recent research by Bannatyne and Wohlmann there was much that was obscure in rheumatoid arthritis. After referring to the eye symptoms, he called special attention to the contraction of the fields of vision which frequently occurs.

He compared the compound charts of male and female patients and found them similar. They were arrived at by a novel method. The number of degrees from fixation point outwards was noted in each case, these were added together and divided by the number of patients examined and so an average field was constructed. The uniformity of the fields in the two sexes excluded, he thought, hysteria, but not necessarily neurasthenia.

There was no central scotoma in rheumatoid arthritis, and no evidence of optic atrophy, and as a rule not more than a proportionate contraction of the color fields. He remarked upon the Raynaud-like symptoms that are sometimes present and said that Dr. Samuel Lodge had noticed contraction of the fields in this disease. Possibly the contraction was due to the syncopal condition of the terminal vessels of the retina. Diagrams were shown in which expansion of the fields occurred when nitrite of amyl was inhaled, whereas in a healthy person no enlargement was noticed.

Mr. J. R. Lunn described a *Case of Tuberculosis of the Choroid*. The child was six years of age, and was suffering from symptoms of general tuberculosis, being in a typhoid condition. Optic neuritis was present and a swelling was seen in the choroid. The child, however, in spite of the disease, got quite well but the oval area in the choroid is still present. Mr. Jessop mentioned a somewhat similar case.

The following Card Specimens were shown:

Mr. Johnson Taylor: *A swelling of unusual size in the ciliary region.*

Mr. Treacher Collins: *An unusual symmetrical opacity in both cornea.*

Mr. G. W. Thompson: *Central choroiditis in a young man.*

Mr. G. W. Roll: *Unusual changes in the macular region.*

Dr. D. Mowat: *Paralysis of the inferior recti muscles.*

Dr. Rayner Batten: *Subretinal Hemorrhages.*

C. DEVEREUX MARSHALL.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED
KINGDOM.

Thursday, February 11, 1904.

John Tweedy, F. R. C. S., president, in the chair.

Notes on a Case of Gonorrheal Conjunctivitis in an Adult Treated with Peroxide of Hydrogen.—The patient was a woman, aged thirty-two, whose eye had been inflamed for two days before it was seen. The lids were swollen and a profuse discharge was present. Gonococci were found easily in the discharge. Perchloride of mercury was used as a lotion as well as protargol 5 per cent to the lids. Drops of 3 per cent peroxide of hydrogen were used every four hours. On leaving off the peroxide the cornea rapidly became ulcerated, but on recommencing it the ulcer at once ceased spreading and healed, leaving remarkably little scar behind. Excellent vision was obtained and Bronner had never seen so bad a case make so remarkably good a recovery. This he attributes to the peroxide. The solution he used was that made by Merk.

The President had used it in cases of hypopyon ulcer, but had not tried it for purulent ophthalmia. The ulcer cases did very well indeed.

Mr. Hartridge said that years ago all cases of purulent ophthalmia at Moorfields were treated with it, but that for some reason or other it had been given up. He thought that protargol of weaker strength than 20 per cent was of very little use.

Mr. Holmes Spicer said that some years ago he published a large number of cases of purulent ophthalmia treated at Moorfields and he found that those treated with silver did much better than when treated only with peroxide.

Mr. Bronner in reply said that he did not at all advocate its use to the exclusion of silver and other remedies, but in combination with them he was much impressed with its utility, and he hoped at a future time to have other cases to show.

Mr. J. Herbert Parsons read a paper on *Congenital Anterior Staphyloma*. The patient was a girl, aged three days, who was admitted at Moorfields under the care of Mr. Fisher, with an anterior staphyloma of the left eye. The condition was noticed at birth. The mother was healthy and the confinement was normal; the child was born immediately after the rupture of the membranes. There was no other deformity.

There was a very slight mucous discharge and a complete anterior

staphyloma with no anterior chamber. The iris was adherent to the pseudo-cornea, which was very thin and almost transparent.

Pathological examination showed the usual features of an anterior staphyloma, the lens was in situ and the whole eye was in an early stage of panophthalmitis, the posterior chamber being full of poly-morphonuclear leucocytes, which were also present in the vitreous. The true cornea at the sides showed dense infiltration; the epithelium and Descomet's membrane were present here only. The anterior capsule of the lens was ruptured; the lens was cataracterous, but there was no anterior capsular cataract.

Nine previous cases of congenital anterior staphyloma with pathological examinations have been reported. All the cases show exactly the same features which are found when the condition develops in the usual manner after birth. It is probable that the intrauterine cases are due to the same cause, viz.: perforation of the cornea. Traumatic perforation of the cornea under these circumstances is very improbable. Can intrauterine ulceration of the cornea occur? Endogenous infection is improbable, owing to the absence of blood vessels in the fetal cornea; at the same time it may be brought about by toxins. Exogenous infection through the amniotic fluid is more probable, and accounts for the frequency of bilateral disease. There is no doubt that intrauterine transmission of infection (e. g., anthrax, tubercle, etc.) can occur. Infection per vaginam at birth can be definitely eliminated in some cases, e. g., Hirschberg & Birnbacher's and Runte's, in which the children were seen half an hour and half a day, respectively, after perfectly natural confinements. It is very improbable in the case cited, seen on the third day.

It is almost impossible to explain the cases on the theory of mal-development, and even in this case the inflammatory condition must be explained.

Mr. Treacher Collins, who had seen the specimens, had come to a different conclusion and he thought a failure in the development of the anterior chamber was the original cause of the condition. The inflammatory changes might easily have occurred in the three days following birth, and as there was a gap in the anterior capsule he thought that there had been a perforating lesion done most likely by the finger of the accoucheur.

Mr. Nettleship referred to two cases that he had seen and Mr. Parsons replied.

The following Card Specimens were shown:

Messrs. A. Ogilvy and Sydney Stephenson: *Specimens from a case of Epithelioma of the Ocular Conjunctiva.*

Mr. Arnold Lawson: *Traumatic aniridia.*

Mr. Bishop Harman: *Nose-blinking movements.*

Mr. Hartridge: *Unusual opacity of posterior part of lens and capsule.*

Mr. G. W. Thompson: *Double kerato-iritis in an infant. (2) Peculiar changes of and around the disk.*

Mr. Mayou: *Two cases of cerebral degeneration from the same family associated with macular changes.*

Mr. Jessop: *Epibulbar tumor.*

C. DEVEREUX MARSHALL.

SECTION ON OPHTHALMOLOGY.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting, February 16, 1904. Dr. G. C. Harlan, acting chairman.

Dr. Edward A. Shumway exhibited a case of *Post-neuritic Optic Atrophy Associated with Facial Paralysis*. The patient, a young girl, nineteen years of age, was quite anemic, and suffered from amenorrhea, but had had no acute illness. Right-sided facial paralysis had appeared fifteen months before, and during the attack some disturbance of vision was noted, but no eye examination had been made. Two months ago she was seen at the University Hospital, in the service of Dr. G. E. de Schweinitz, at which time double optic atrophy, the result of neuritis, was discovered. The face had recovered its tone and there was no sensory disturbance, but a decided facial hemiatrophy with enophthalmus was present. Dr. Shumway believed that the neuritis had been the result of the anemia, or its attendant pelvic disturbance, and desired to postpone the discussion of the interesting questions connected with the case until a subsequent occasion.

Dr. W. Zentmayer showed a case of *Abnormal Development of the Iris*. In the right eye there was a narrow rim of iris tissue below and inward, and degenerated notched iris tissue jambed against the posterior surface of the cornea along its temporal border. The overlying corneal tissue was sclerotized. In the left eye there were two segments of iris tissue, the upper crescentic and stretched across the upper fourth of the anterior chamber, with a fine line of iris tissue skirting its lower margin; the lower likewise crescentic, about twice the width of the upper one, and containing an oblique oval opening 2.5 by 5 mm. The two strips were separated by a broad horizontal

pupil. The anterior capsule of the lens contained some fine deposits in both pupils. There were no associated anomalies.

Dr. Wm. T. Shoemaker showed a case of *Bilateral Enlargement of the Lacrimal Glands* in a colored girl, nineteen years old. The condition had existed for four or five years, was without pain or inflammation, and gave annoyance only on account of disfigurement and an almost complete ptosis on the right side. So far as could be determined, the process was limited to the outlying lobules along the fornix, constituting the accessory glands. These could be everted and showed considerable enlargement covered with an almost normal conjunctiva. The salivary glands, or the lymphatic glands, or the spleen were not enlarged. The patient had a rather profound simple anemia; otherwise the general health was good.

From a résumé of the cases of symmetrical enlargement of the lacrimal glands in literature from all causes Dr. Shoemaker divides these cases into five classes. (1) Those belonging to the disease established by Mikulicz in 1892, in which there is a non-inflammatory, non-painful, long-standing enlargement of the lacrimal glands, together with the salivary glands, without any demonstrable disturbance of the general organism. (2) Cases secondary to disease of the conjunctiva, cornea, sclera, or iris. (3) Cases occurring in the course of systemic disease, such as syphilis, tuberculosis, leukemia, pseudo-leukemia, mumps, and measles. (4) True tumors. (5) Cases unlike those of the other classes. Some of them might be called functional, as, for instance, the sudden bilateral enlargement of the lacrimal glands in a case of grief and bereavement (McHardy); the periodic enlargement of first one and then the other gland at the commencement of menstruation (Lagrange); and cases without apparent cause, disappearing within a short time with or without treatment.

Discussion.—Dr. Zentmayer recalled having seen two similar cases of particular interest in connection with Dr. Shoemaker's case, in that they both occurred in negro women, suffering, if he remembered rightly, from some serofulous inflammation of the eye attended by general glandular enlargements. Dr. Harlan stated that he had never seen a case of bilateral enlargement of the glands. Some years ago he reported a tumor of the lacrimal gland which proved to be sarcoma. Excision of these growths is rarely followed by recurrence, probably owing to their encapsulation.

Dr. John T. Carpenter reported a case of *Fatal Septic Meningitis following Facial Erysipelas*, and briefly referred to two similar cases previously seen, one ending fatally from extension to the brain; the

second recovering with loss of the eyeball, enucleated for secondary glaucoma. In the case referred to, facial erysipelas spread rapidly over the left side of the face, temple and head. Left-sided orbital cellulitis with paralysis of the superior rectus and the levator; no congestion of the eyeball; normal visual acuity with healthy appearance of the fundus. Under appropriate local and general measures, and early, extensive, and deep incisions in the inflamed area, marked improvement occurred, and two days before the fatal termination the temperature was 99°. The only unfavorable symptom was persistent intense pain over the supraorbital rim. In the deep incisions made beneath the brow denuded and roughened bone could be felt on the under surface of the orbital plate of the frontal bone. Sudden change for the worse occurred two days before death occurred, with vomiting, intense headache, rapid rise in temperature, mental dullness, and slight bloody discharge from the left ear. Examination of the blood showed profound leukocytosis. Examination of the nares showed mucous membrane healthy, nasal passage free, no swelling of the turbinals, and no purulent secretion from any of the accessory nasal sinuses.

Reference was made to cases in literature illustrating the fact that extensive sinus disease producing orbital cellulitis and brain abscess had come to autopsy, in which careful examination of the nose had failed to reveal disease of the ethmoid and sphenoid cells (Holmes). A case reported by Gruening was cited, illustrating the failure of radical and thorough surgical interference, involving free opening of the frontal sphenoidal and ethmoidal cells with osteotomy for drainage of the cranial cavity. This patient died of widespread pneumococcus infection involving the accessory sinus and the brain.

Dr. Carpenter laid stress upon the fact that, in his opinion, cases of this nature demanded the early association in the case of a surgeon experienced in brain surgery.

Discussion.—Dr. Zentmayer spoke of the treatment of one class of such cases, recently advised by v. Ammon: the making of probe-like incisions with extensive separation of the periosteum of the roof of the orbit. He was led to try this because of a case of caries of the roof following erysipelas simulating orbital phlegmon, in which, after apparent recovery, death took place some weeks later from abscess of the frontal lobe. A similar case was subsequently saved by this procedure.

Dr. G. E. de Schweinitz and Edward A. Shumway reported a case of *Dermoid of the Orbit* in a young man, nineteen years of age.

The growth was congenital, but had become more prominent as the result of an incision made into it several years before. It was situated in the outer angle of the right orbit, beneath the upper lid, and presented a long narrow extension which reached beyond the median line of the lid. There was considerable difficulty in dissecting it out, but the subsequent result was perfect, no limitation of movement of the lid appearing. Microscopic sections of the growth were exhibited, and showed the appearances of a typical dermoid cyst. It was irregularly lined with epithelial cells, and contained a grumous mass, composed of degenerated cells, fatty detritus, and hairs. The wall showed in one place a fully formed bit of skin structure, with hair follicles and large sebaceous glands.

Discussion.—Dr. Harlan said that the usual situation of these tumors was at the outer angle of the orbit. In one instance he found in a dermoid removed from this situation a distinct bundle of hairs rolled in the shape of a ball.

Associated Movement of Eyelid and Jaw.—Dr. G. C. Harlan gave the history of a boy, aged four years, who was referred to the Eye Department of the Pennsylvania Hospital on account of spasmodic twitching of the left eyelid during mastication. He was a well-developed child of good intelligence, and there was no other sign of disease, either local or general. At two years of age he had typhoid fever, and the mother states that the affection of the eyelids was noticed immediately afterward. During the process of mastication there was an energetic and rapid winking of the left eye, which gave the impression of blepharospasm. When the patient was examined again, several weeks later, the movement of the lid was much slower and less pronounced, and it was evident that it was due to contraction of the levator. It was coincident with the opening of the mouth, and was more decided as the patient looked down. There was just perceptible ptosis; when the patient looked directly forward the right upper eyelid just reached the margin of the cornea, while in the left eye it covered it. The movements of the lids and balls were otherwise normal, the pupils were equal and active and the ophthalmoscopic appearances were normal. This case, if the history is correct, differs from others reported in not being congenital. As the child's mother is more intelligent than the average of her class, and was very closely questioned, it is believed that her account can be relied upon.

Since attention was first called to the subject by Marcus Gunn in 1883, a number of cases of so-called "jaw-winking" have been re-

corded. Sinclair collected thirty-two cases up to 1895, in all but three of which there was decided ptosis. It was difficult to satisfactorily explain the associated movement of the muscles in these cases. Of course, no morbid process could transfer a nerve fibril to another nucleus and no explanation involving an abnormal nerve distribution will serve our purpose. Perhaps the case gives some support to Hamman's suggestion of the close relations of the "facial complex." He states that in the shark the fifth and seventh nerves are so closely associated that they are commonly known as the "facial complex," and that the orbito-spiracular musculature innervated by this facial complex is the primitive ancestor of the complicated facial musculature of man. In the fish when the mouth is opened the spiracle dilates, and it is a revival of this which we see in these various cases of jaw-winking movement. In other words, it is an "atavistic anomaly." There is a weak levator and during the action of the pterygoid there is an associated relaxation of the orbicularis which enables the levator to lift the eyelid. This would not account for cases in which there is an evident spasmodic effort to raise the lid when it is forcibly held down by the hand.

WILLIAM M. SWEET, M. D., *Clerk of Section.*

BERLIN OPHTHALMOLOGICAL SOCIETY MEETING.

JANUARY 21, 1904.

Vice-President Professor Hirschberg, chairman.

Hirschberg showed four cases of foreign bodies in the eye which he operated on in December. He does not agree with Haab's assertion that absence of pain on approaching the giant magnet proves absence of foreign body; nor does he acknowledge Knapp's statement that an angel's patience is necessary in order to obtain results with the sideroscope, especially if his new "simplified" model is used.

A remarkable feature of one of the cases was that the piece of iron located in the retina passed through (instead of around) the iris as soon as the giant magnet began to work; according to Haab this is never the case. In the three cases with iron in the retina vision was restored (nearly normal); in the fourth case, with iron in the deeper layers of the cornea, quite a common injury, sight was, of course, poor.

Fehr exhibited three cases of *new corneal diseases* for which he proposed the name *familiäre fleckige Hornhautentartung* (*family degeneration of the cornea with blots*). F. gave the history of Haab's gitterförmige keratitis and the nodular keratitis of Fuchs, to which diseases his cases bear a great resemblance, except that the epithelium remained clear. The man and his two sisters were all afflicted at the age of 10 to 14, and the disease has been steadily progressing for twenty years. Never was there any sign of irritation or of pain; eyesight is very poor ($\frac{1}{60}$ and more). In the superficial layers of the cornea a great number of blots, streaks showing all kinds of shapes are to be seen; margin is clear; etiology unknown, treatment with mercury and the like proved useless.

Discussion.—Paderstein, who had treated one of these cases with Jequiritol, said that although it did no good, it did no harm in this case. He also exhibited a case of corneal disease somewhat similar, but which looked like an old case of cured interstitial keratitis.

Herzog examined about 1,000 sections and a few whole lids from a collection Professor Rachlmann had sent him, in order to study *Demodex folliculorum* and its pathology. They were all cases of trachoma. The lymphatic elements of the skin of the lids he examined were all in a state of chronic proliferation, in each follicle there was a demodex. H. exhibited living demodex animals and also microscopic specimens of the lid. The inflammation he ascribes to dipobacilli which he always found associated with the animals.

Von Haselberg showed the *enucleated eyeball* of a Russian girl from Tiflis who had lost vision in the course of a few weeks. The diagnosis made had been cysticercus or tuberculous growth (Schwarte). It proved to be a cysticercus in the vitreous which was formerly attached to the optic nerve. H. gives a small statistical account of this disease, which was quite common thirty years ago and now rarely occurs in Germany.

Discussion.—Hirschberg states that cysticercus was formerly even more common than H. mentioned and intends to report on the statistics of his clinic some other time.

BERLIN.

DR. E. H. OPPENHEIMER.

ABSTRACTS OF RECENT OPHTHALMIC LITERATURE.

BY EDWARD A. SHUMWAY, M. D.,
PHILADELPHIA.

Plexiform Neuroma of the Lid.—Duclos (*Annales d' Oculistique*, October, 1903) reports a case of plexiform neuroma of the upper lid in a child of three years, which appeared as a swelling at the external angle, in which hard, interlacing cords could be felt beneath the normal skin. Valude attempted to destroy the growth by electrolysis, but as there was very little reduction in size, it was subsequently excised. Microscopical examination showed the characteristic appearance of interlacing bundles of fibrous connective tissue, in the center of which nerve fibers, which had undergone granular degeneration, could be demonstrated. These cords of fibrous tissue were embedded in a connective tissue mass, which was also hyperplastic. These growths are the result of a double process, on the one hand a degeneration of the nerve fibers, and on the other a proliferation of the connective tissue surrounding the nervous bundles.

The Action of Subconjunctival Injections of Sublimate Upon Blepharorrhagic Ophthalmia of the Adult.—Th. de Speyr (*Annales d' Oculistique*, October, 1903) employed subconjunctival injections of sublimate (1-2000) in a case of blepharorrhagic ophthalmia in an adult, in which the gonococcus was present, and despite active treatment an ulcer of the cornea had formed. He reports the checking of the ulcer and a diminution of the discharge from the conjunctiva. Five days later a second injection was made, and the ulcer rapidly healed, leaving only a slight opacity, while the purulent discharge yielded and the catarrh gradually disappeared. He reports a second successful case in the practice of Dufour, and with the history of Siklosy's cases, published in 1898, thinks he is justified in recommending the injections in all cases of blepharorrhea of the adult, whether they are complicated or not with ulceration of the cornea, and that they are perhaps indicated as a prophylactic measure, where an eye is accidentally affected by a drop of gonorrheal pus.

Parenchymatous Keratitis in Acquired Lues.—Wandel (Inaugural dissertation, Breslau, 1903, rev. in *Wochenschrift f. Ther. u. Hyg. des Auges*, December 3, 1903) reports a case from the practice of Groenouw and reviews the literature of forty-five cases in which acquired syphilis was the cause of the parenchymatous inflammation of the cornea. The first case was reported by Fournier

in 1872. The disease commences with subjective symptoms, such as cloudy vision and lachrymation. The cornea shows either an intact surface or a dull, needle-stuck appearance. In other cases, in addition to a diffuse opacity, isolated grayish yellow points appear, which probably represent gummatous round cell collections. The vascularization of the deeper corneal layers ordinarily does not reach so high a degree, as in other diseases of the cornea. The duration of the process is from two to four months, much shorter than in hereditary syphilis. The recovery under anti-syphilitic treatment is usually so complete that restitutio ad integrum occurs. The time between primary infection and the appearance of the keratitis varies from four months to two years. Local treatment consists of atropine, cocaine and later yellow salve, according to the involvement of the iris and the degree of corneal infiltration. Primary disease of the uveal tract has not been demonstrated, so far as pathological examinations have been made, but the vitreous and choroid have been involved secondarily in several cases. The condition is usually unilateral.

Remarks on Detachment of the Retina and Its Treatment.—

Deutschmann (Hamburg) (*Ophth. Klin.* '93, 21, rev. in *Wochenschr. f. Th. u. Hyg. des Auges*, December, 1903) points out important details in the ophthalmoscopic appearance of genuine detachment, namely, the spontaneous perforation of the detached membrane, the separation of the periphery of the retina, and the yellowish white, white or often brownish deposits in the floating membrane. The spontaneous perforation is an attempt by Nature to bring the process to a standstill, and eventually to recovery, and is more frequent than is generally assumed. According to Deutschmann the process in true detachment is as follows: The cause is an equatorial chronic uveitis, varying in intensity, and entirely or nearly circular. The direct result is a disturbance in the nutrition of the vitreous, which becomes fibrillar and contracts, so that a posterior detachment of the vitreous occurs, which is assisted by the direct pull of the shrinking portions of the inflamed uveal tract anteriorly. The free space thus formed in front of the retina is immediately filled with fluid, which comes partly from the ciliary vessels, and partly, perhaps, from the retinal vessels. The direct pull acts also on the retina, and the retina is raised as far as its elasticity permits, but it is not detached so long as its elasticity is sufficient, and the fluid present fills out the preretinal space. If the secretion of the fluid is lessened, by compression of the ciliary vessels, and by the increased tension of

the stretched retina, while the inflammatory process in the vitreous extends, the time comes when the retina itself is drawn inward to fill out the preretinal space. It arches forward, fluid is poured out behind it, from the choroidal vessels, and the detachment is complete.

Ophthalmoplegia and Arterio-Sclerosis.—Pechin and Rollin (*Archives d' Ophthalmologie*, September, 1903) report a case illustrating the fact, to which Uhthoff has called attention that lesions of the base of the brain may pick out certain nerve fibers, leaving others intact, and in this way simulate lesions of the nuclei. The patient, a man sixty-four years of age, was a tabetic, and had arterio-sclerosis, a large heart and chronic nephritis. He developed total ophthalmoplegia and optic atrophy on the left side, and incomplete ptosis and paralysis of the superior rectus on the right. As the man had tabes, the muscular paralyses were supposed to be due to nuclear lesions, but the patient died suddenly and the autopsy revealed very extensive arterio-sclerosis, with a dilatation of the left carotid artery in the cavernous sinus, which compressed the oculomotor and other nerves on the outer wall of the sinus. On the same side the ophthalmic artery was the size of a goose quill, and its thickened walls had compressed the optic nerves into a flat bundle. On the right side the same conditions were present in the sinus, but not so pronounced. Sections of the medulla and pons showed them to be normal macroscopically. The conditions were thus shown to be due to basilar lesions and not to nuclear. Syphilis causes local anemias consecutive to syphilitic arteritis, and produces nuclear disturbances; but it also produces aneurisms, and if atheroma is added to the arteritis, it gives rise to arteritis deformans, and this condition should be kept in mind in considering the pathogenesis of ocular paralyses.

Concerning a Special Form of Acute Pericystitis Due to the Streptococcus.—According to Poulard, working in de Laperrière's clinic (*Archives d' Ophthalmologie*, October, 1903), in addition to the usual forms of acute pericystitis due to streptococcus infection there is a special form which has never been described. It is characterized by the following symptoms: Pain on pressure over the lachrymal sac; sometimes a little redness, and slight tumefaction; moderate lachrymation. These slight local and functional disturbances are associated with considerable swelling of the preauricular, submaxillary and parotid lymph glands. This adenitis is the most striking symptom, so that the condition would be perhaps

better described as an "infectious adenitis due to streptococcus infection with the starting point in the lachrymal passages." The infection is sudden, and the course generally acute, and it is due to the infection of the cellular tissue surrounding the lachrymal sac by the same agent which produces acute pericystitis—the streptococcus. Poulard reports three cases.

Ocular Complications of Mumps.—Le Roux (*Archives d'Ophthalmologie*, October, 1903) reports a case of toxic amblyopia following fifteen days after an attack of mumps. There was bilateral reduction of vision to $\frac{1}{4}$, absence of fundus lesions, and central scotomas for color. In the course of two months the vision gradually returned to normal, and the scotomas disappeared. The patient was a soldier, but was not a drinker or smoker, and denied syphilitic infection or rheumatism. The general health was good, and no other ocular affection was present. Le Roux considers the condition due to the absorption of bacterial toxins, and their action upon the optic nerves.

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Original Articles.

VERNAL CATARRH: A PATHOLOGIC STUDY.

RICHARD H. JOHNSTON, M.D.

Assistant Surgeon and Pathologist to the Presbyterian Eye, Ear and Throat
Charity Hospital; Demonstrator of Laryngology in the University
of Maryland School of Medicine.

BALTIMORE.

Pathologic findings in vernal catarrh are rarely reported, probably due to the fact that the tumor-like masses are so seldom removed. The pathogenesis of the disease is obscure, and many theories have been advanced as to its causation, no one of which has found general acceptance. In my work at the Presbyterian Hospital I have had the good fortune to obtain a specimen of bulbar vernal catarrh from a boy in the practice of Dr. Hiram Woods of this city. The patient, who was eight years of age, had had a recurring inflammation of both eyes for some years. On the nasal and temporal sides of the limbus in both eyes were small prominences about the size of a split pea. These prominences, which were of a grayish color, projected over the edge of the cornea for perhaps 3 mm. At the inner margin of each was the whitish corneal crescent so characteristic of vernal catarrh. Dr. Woods excised a small piece for microscopic examination. A quick diagnosis was desired, so the specimen was hardened in formaldehyd and absolute alcohol. Sections 4 mm. thick were cut twenty-four hours later and stained with hematoxylin and eosin. The growth had twice been removed. The patient had been sent to Baltimore with a diagnosis of possible malignancy. The specimen was free from any inflammatory reaction in spite of the operations. On examining with the low power, the epithelium covering the mass is seen to be much thicker than normal. At certain points it dips down into the stroma, forming either cone-shaped processes with the bases toward the periphery or invaginations like the sac of a hernia. Some of these invaginations extend almost to the base of the growth. Underneath the epi-

thelium and clearly marked off from it is the stroma, consisting of connective tissue. This connective tissue is thin and wavy and arises from the base of the tumor. Toward the base are cells which are found by the high power to be leucocytes and connective tissue cells. The high power shows eight to sixteen layers of epithelium with three distinct strata. The outermost layers are flat or squamous in character with nuclei not at all or very poorly defined. Next to this there are a few layers of polygonal cells with deeply staining nuclei. The innermost layers consist of cylindrical epithelium with deeply staining oval nuclei. The invaginations are lined with these cylindrical cells, which are arranged perpendicularly or obliquely to the periphery. At one point, where one of the epithelial processes is cut across, the epithelium resembles the nest of the epithelioma. The connective tissue stroma proceeds from the base in wavy fibers toward the periphery and terminates definitely at the epithelium. There are small spaces scattered through the stroma containing connective tissue cells. A few mononuclear and polynuclear leucocytes can be seen. The connective tissue running up between the processes and invaginations of epithelium form papillæ, such as are sometimes seen in papillomata. The section is poor in blood vessels. The microscope establishes the fact that vernal catarrh is not a true catarrh, but partakes of the nature of a new growth, there being present epithelial and connective tissue proliferation. Macroscopically, the tumors resemble, perhaps, most, papillomata. Microscopically, there are resemblances to fibromata and epitheliomata. The processes and invaginations of epithelium are seen in true epitheliomata. But there is this important difference between the two growths. In epithelioma, the cell proliferation is progressive and invading and is not stopped by a hyperplasia of the subjacent tissue as in vernal catarrh. According to Virchow, a tumor should be designated fibroma where the connective tissue predominates. If, on the contrary, epithelial proliferation is greater, the growth must be epidermoidal or papillomatous in character. So that it seems reasonable to call these tumors fibromata or papillomata according as the epithelial or connective tissue increase is greater. Terson found a decided difference between the lid and limbus processes. Sections from the limbus showed thickened, stratified epithelium, but the invaginations were not at all prominent. The tissue contained some dilated blood vessels and lymphatics, but was poorly supplied with cells. The whole mass gave the impression of fibrous tissue. In sections from the tarsal masses, the epithelium was less abundant and invaginations entirely absent. The general mass of the tissue was equally fibrous, but there was, in addition, a decided

infiltration of round cells and leucocytes. Danvers, who has had exceptional opportunities for examining specimens microscopically, concludes that in the bulbar form the epithelial changes are the chief and most constant ones, although, at the same time, the stroma is much increased relatively and hypertrophied. In all specimens from the tarsal form the stroma shows more marked hypertrophy and proliferation and strictly limits the epithelial invasion. Knüs has found in the tarsal growths that the epithelium is not much thickened, being of only five or six layers instead of fifteen or twenty, as in the bulbar form. Vetsch made perpendicular sections from the tarsus and found epithelium markedly flattened. On the other hand, de Schweinitz and Shumway have recently examined a specimen from the lid and found fibrous connective tissue covered by from ten to sixteen layers of epithelial cells, sending processes and invaginations into the stroma and forming nests of various shapes, which gave rise to an appearance resembling that of carcinoma. The cells in the center of the nests had degenerated, leaving spaces lined by cylindrical epithelium. Spicer calls these growths on the lid fibromata, since, in his specimens, the amount of epithelium entering into their formation is not greater than that forming the normal conjunctiva of the lids. The section examined by de Schweinitz and Shumway certainly corresponds to the form usually found on the limbus and their examination would seem to prove that there is no essential difference between the two forms. My section corresponds very closely with their description. The disease, from the microscopic examination, is probably not a catarrh but a form of new growth, consisting essentially of epithelial and connective tissue proliferation.

In conclusion I wish to express my thanks to Dr. Woods for the specimen which has made possible this study.

819 Park Avenue.

THE ASSOCIATION OF CATARACT WITH UNCINARIASIS OR HOOK-WORM DISEASE.

A. W. CALHOUN, M.D.

ATLANTA, GA.

It has been clearly demonstrated by recent investigations that hook-worm disease is of frequent occurrence in certain parts of the Southern States. Dr. H. F. Harris, professor of bacteriology in the Atlanta College of Physicians and Surgeons, has made most interesting and instructive observations upon this disease, and his writings should be in the hands of every southern physician.

During the last few months I have operated upon several cases of cataract, associated with and developing subsequent to the appearance of this disease, and I have been impressed with the belief that the hook-worm was indirectly the cause of the cataract.

Feb. 1, 1904, I was consulted by Mrs. H., 42 years of age, from Florida. She was very pale and profoundly anemic (condition found in reputed "Dirt Eaters"), with a skin of deep lemon-yellow color, and the mucous membrane of the mouth and the conjunctiva almost bloodless. She gave no distinct history of malaria, had not lost flesh and had normal temperature; indeed, her health was moderately good, but there was a slight dropsical condition of the lower extremities, which she attributed to her sedentary life. Examination of urine showed neither albumin nor sugar. Double cataract (chalky white) was fully developed with good light perception, beginning a year *after* the establishment of the general disease. Examination of the stools showed the eggs of the worm in large numbers, revealing an undoubted case of uncinariasis. After a few days of vigorous treatment, I extracted the cataract from the right eye. She made a good and rapid recovery and returned home a few days ago with good vision.

In June, 1903, a boy, 14 years of age, was brought to me from the southern part of Florida with well-matured double cataract. He had identically the same general appearance and all the prominent symptoms of the case of the woman above described, the blindness, as in the woman, beginning *after* the general disease had been in existence about eight months. Specimens of the feces were examined and quantities of the hook-worm eggs found. He had no malarial history. After an active treatment with calomel, followed by large doses of thymol, the cataract of one eye was needled and he made a satisfactory, uneventful recovery.

During the same summer (1903) I operated upon two other cases of cataract, associated with similar conditions—one male, 40 years of age, from South Georgia, and one female, 43 years of age, from Florida. Each presented the intense anemic yellow skin, bloodless mucous membranes (conjunctiva a bluish white), normal temperature and freedom from malaria and kidney complications. Both had slight swelling of the lower extremities. As in the others, the cataract in these two cases began *after* the development of the general disease. In every instance where the examination of the feces was made, the eggs of the worm were found.

I can now recall to mind several other cataract cases, having all these well-marked conditions, but I did not then have any acquaintance with the parasite, and hence no examination of the stools was

made. They were supposed to be suffering from malaria and were treated as such preparatory to the operation. I am now convinced they had hook-worm disease.

Double cataract was present in each case and came on *secondarily*; that is to say, the systemic infection existed for a variable period previous to the beginning loss of sight.

The lens derives its nourishment from the surrounding tissues, and any disturbance of this nourishment ends sooner or later in cataract. The tests, in all the reported cases, having shown an impoverished state of the blood, it is easily understood how the proper sustenance of the lens could be diminished and opacity quickly follow.

The hook-worm is found in many parts of the world, but it seems to have been discovered in the southern part of the United States only in very recent years. Dr. Harris says: "The profession in the South should earnestly take up this matter, for in no other serious disease does the victim suffer so long, in no other condition is he for such a period a menace to those about him, and in no other malady of such gravity is the treatment so rapidly and surely successful." If this disease predisposes the patient to cataract, the hook-worm becomes a subject of as much interest to the ophthalmologist as to the general practitioner, for in the victim of uncinariasis cataract *might* become one of the preventable diseases, since it (hook-worm disease) is so rapidly and surely curable.

I hope to report still other cases of cataract, associated with this disease, and will appreciate a communication from any one who has had any experience or made any observations similar to my own. To my mind the association is quite suggestive.

NOTE.—Since writing the above, I have operated on another case of cataract, in a boy, 16 years old, from Alabama, with unquestioned uncinariasis. The cataract in this case also came on *after* the hook-worm disease had existed almost a year.

A LUMINOUS TEST CABINET.*

NELSON MILES BLACK, M.D.

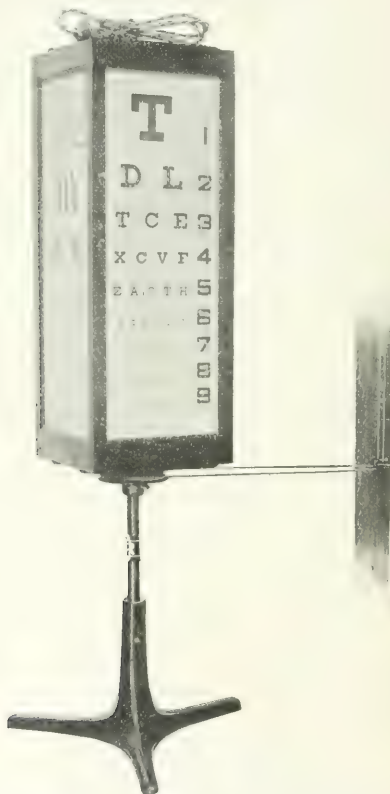
MILWAUKEE, WIS.

(Illustrated.)

In examinations for the army, navy, merchant marine, railway and civil service, where a standard of vision is required, it is manifestly impossible to obtain any degree of uniformity in the records, because of the difference in illumination of test charts by reflected light. Then again, the background and surroundings of the chart,

* Read before the Chicago Ophthalmological and Otorological Society, April 12, 1904.

the amount of day or artificial light in the room, all aid or interfere with the letters being plainly seen. The decided difference in illumination in various ophthalmologists' offices is very noticeable. This undoubtedly accounts for the great difference in records of visual acuity of patients sent from one doctor to another.



The square test chart holder of Lang, used in Moorefield's Hospital, suggested a simple method of securing uniformity of illumination in any place where electricity could be obtained, and any town of sufficient size to support an ophthalmic surgeon has its own electric-light plant. By placing test letters upon some translucent

substance and lighting this from behind, the difficulty is overcome. Letters pasted on ground glass were first tried and a common 16-candle-power incandescent lamp used to light them. This gave a disc of light directly before the lamp. Then a lamp of ground glass was tried: this diffused the light better, and by pasting some bond paper on the posterior surface of the ground glass, the diffusion was perfectly uniform. Four charts were made, two by pasting the letters cut from the regulation Snellen chart and two by painting the letters on the ground glass with black enamel paint, bond paper being pasted on the back of these. A square frame was made of tin and fastened to a curtain pole in the center of the frame by wires running from each angle; the pole is supported by two common iron brackets at a sufficient distance from the wall to allow the tin frame to turn and show all sides; a cord wrapped three times about the pole and carried by means of pulleys to the trial case allows the operator to change the chart at will. Four ground-glass 16-candle-power incandescent lamps light the apparatus and are turned on and off by a switch at the trial case.

This homemade apparatus has been in use three years and has given perfect satisfaction.

The porcelain charts now in vogue give the best diffusion of light and make an ideal luminous chart, are more easily kept clean than ground glass and do not require ground glass lamps.

The army, navy and many railway systems have adopted the Snellen test types as a standard because of their uniformity. They are used at standard and uniform distances, and it seems of equal importance to the writer that a uniform and equal standard of illumination be required.

105 Grand Avenue.

A CASE OF PANOPHTHALMITIS FOLLOWING CATARACT EXTRACTION IN AN APPARENTLY HEALTHY EYE.—CAUSE, PNEUMOCOCCUS INFECTION.

HIRAM WOODS, M.D., AND RICHARD H. JOHNSTON, M.D.
BALTIMORE.

W. C., 52 years of age, colored, was admitted to the Presbyterian Eye, Ear and Throat Charity Hospital, in the service of the first named of the authors. The left eye had gone progressively blind for several years and now had only light perception. A mature cataract was present, giving a white rather than a gray reflex. Light perception and projection were normal with prompt and normal light pupil reflex. The right eye had 20/20 vision, with faint peripheral

striations in the lens at the lower and inner periphery. Careful examination of the conjunctival sac, nasal cavities and lashes showed no contraindication to extraction. Urine contained neither albumin nor sugar. The man's general condition was good, though he gave a history of a "bad cold" six weeks previous to his entrance to the hospital. Following my usual custom of keeping a patient under observation for at least twenty-four hours before operation, the man stayed in the hospital all that night. Sterile atropia solution was used the next morning. At operation, in the afternoon, instruments were boiled for five minutes, except a tortoise shell spoon, which was first washed with hot water, then with alcohol, and finally placed in a 5 per cent. solution of carbolic acid. When used it was taken from this solution and dipped into sterile water. The only mishap during operation was that the iris fell in front of the knife during corneal incision and was excised by the knife in completing the opening of the globe. This involuntary iridectomy was completed by clipping the edges of the iris at the corners of the corneal wound. The cocain solution, 4 per cent., was, of course, sterilized by boiling and sterile dressings of absorbent cotton and double bandage applied. No one touched the eye but myself, yet possibly it should be added that six or seven students witnessed the operation. I felt no concern on the question of infection when the man was carried to bed; that is, no more than I always feel for forty-eight hours after every such operation, no matter how careful I have been or how thorough the antiseptic technic. The next morning—about eighteen hours after the operation—the resident physician telephoned me that pus was "trickling from beneath the bandage." Inspection, when I reached the hospital, showed purulent infection of the corneal wound, profuse, purulent secretion and edema of the lids and conjunctiva. The cornea melted away in a day and the eye went through a typical course of panophthalmitis, eventually shriveling into a painless stump. I asked my friend, Dr. Johnston, pathologist to the hospital, to study the case for me. Without in any way anticipating his interesting and instructive report, which completes this paper, it is just as well to ask, whence came the infection? As no bacteriologic examination of the conjunctival moisture—there was no secretion—was made before operation, it is impossible to say that the pneumococcus was not present. If it was, it did not give the least sign of its presence, and if this was the source of infection the lesson pointed out by Dr. Johnston is most pertinent. Did the "cold," six weeks before operation, leave organisms which at once invaded a fresh wound? This "cold" might, of course, in a patient coming in off the streets, as did this man, have been anything from

a coryza to a pneumonia. Finally, does the case suggest the propriety of gauze coverings for the mouth and nose of operator and spectators? Dr. Gifford laid some stress upon this at the meeting of the American Medical Association in New Orleans in 1903.

Bacteriologic report of case narrated above: At Dr. Woods' request, I made smears and bouillon cultures from the pus of the infected eye, from the conjunctiva of the normal eye and from the blood. The smears stained with methylene blue showed scattering diplococci. The twenty-four hours' bouillon cultures revealed diplococci in abundance. Three c.cm. of this bouillon were injected into a guinea-pig. The malignancy of the organism was attested by the fact that the animal succumbed in less than eighteen hours. Smears from the animal's heart blood showed typical encapsulated pneumococci. Repeated examinations of the cultures showed no other organism, so that it must be concluded that the pneumococcus alone caused the infection of the corneal wound. The cultures from the conjunctiva of the right eye and the blood were sterile. Later cultures from the infected eye always showed pure pneumococci.

The literature on the subject is not very extensive. In *Die Zeitschrift für Augenheilkunde*, June, 1901, Hirota reports three cases of panophthalmitis examined bacteriologically. In one case the pneumococcus in pure culture was found, in the other two in combination with the staphylococcus. In the two latter cases by animal inoculations he proved conclusively that the pneumococcus and not the staphylococcus was the organism causing the loss of the eyes. Gasparini, Uhthoff, Hansell, Bocci, Mündler and Schwarz have all obtained like results. It will be interesting to note that Hirota's cases all had mucocoele and that the pneumococcus is often found in this disease. These investigations prove conclusively that the pneumococcus is certainly a most frequent cause of panophthalmitis. Though cultures taken from this patient's right conjunctiva did not show the pneumococcus found in such abundance in the pus of the infected eye, the propriety of systematic bacteriologic examination of scrapings from the conjunctiva, before operation, would seem to be advisable. Negative results would not, of course, be worth much, but with the evidence we have of the frequency with which the pneumococcus causes panophthalmitis, positive findings would be most valuable.

AN UNUSUAL ACCIDENT TO A GLASS EYE.

B. L. MILLIKIN, M.D.

Professor of Ophthalmology, Western Reserve University; Ophthalmic Surgeon
to Lakeside Hospital, Etc.

CLEVELAND, O.

In May, 1902, I removed a phthisical bulb for Miss S. D., age 38 years, the result of an injury to her left eye when a child. After recovery she had worn an artificial eye steadily with no discomfort. Last November she procured a new eye, and had worn it without difficulty until March 2, 1904.

On March 4, 1904, she came to my office, giving me the following history: On March 2, while ironing some clothes, suddenly there was an explosion in her left eye, with quite a sharp, pistol-like report, so loud that a sister sitting several feet distant heard it very distinctly and thought it was a sudden crack of her glasses. Immediately there was considerable hemorrhage from the eye. As soon as she could remove the eye this was done, and she found quite a large piece, horizontally elliptical in shape, which was broken out of the back wall of the eye, immediately behind the pupil or colored portion of the eye. The broken piece was found lying in the hollow chamber of the artificial eye.

The eye was what is known as the "reform eye," which has a small plate of glass placed on the posterior wall, which leaves a small chamber between this and the front wall.

Examination of the socket showed a small notch in the fold of the conjunctiva at the inner wall of the cavity, quite sufficient to have bled considerably. The patient informed me that she had been engaged in ironing for a half-hour or so before the explosion, that the room was pretty warm, but so far as she could tell the hot iron had not been particularly close to the eye. She wore spectacles continuously, and had these on at the time of this accident. It had not been her habit to bring the iron near the face to test its temperature, and she knew no special reason why this should have occurred at this time. She had been in the habit of doing this work from time to time ever since wearing this eye. The accident produced a good deal of pain and was quickly followed by evidence of irritation with some swelling of the lids and conjunctiva, which, however, rapidly subsided and did not show at the time of the examination.

I am not sufficiently familiar with the steps of the manufacture of these glass eyes to be able to account for the accident except the fact of there being a hollow chamber in the eye might explain it. If this chamber contained any sort of a gas or even air, one might

believe that the overheating of this medium might be sufficient to expand it to the point of exploding the shell in the manner above described, and this seems the most likely theory. After the explosion the small piece might naturally be forced back into the shell cavity by the pressure of the surrounding tissues, thus explaining its presence in the cavity on the removal of the glass eye from the orbital cavity.

The instrument maker who supplied the eye tells me he has never had such a report of a case, nor have I found anything similar in my reading.

The following extract from a note from the manufacturers of the "reform eye" has been received, giving an additional explanation of the accident to the eye:

"In making the 'reform eye' the air is partly exhausted. However, we have never known a case where it was possible to attain a complete vacuum in the same. You know the old saying 'that exception proves the rule,' and this might have been an exception when a complete vacuum may have been attained when making same. If such were the case anything which would crack the eye would allow the air to rush in to fill up this vacuum, which might possibly cause the report as stated."

AN ADJUSTABLE LID SPECULUM.

MARK D. STEVENSON, M.D.

AKRON, OHIO.

(Illustrated.)

The portions of this speculum which touch the lids are of the old solid Mellinger style, only smaller and very much lighter, hence occupy less space. The writer considers the solid part, when properly made, much better than the present fenestrated form or style



of speculum. The following are the principal points of advantage for this speculum:

First—In operations not requiring previous cutting of the eyelashes, it serves to turn many of them away from the field of operation.

Second—Any secretion or foreign matter which might be squeezed out of the glands at the margin of the lids is retained by this speculum and not deposited on the corneal section as is the case with the fenestrated speculum.

Third—The portion of a fenestrated or wire speculum which is underneath the lid is apt to catch or possibly injure the corneal section on its removal unless undue care is exercised. This accident is impossible with a speculum having blades like this one.

The majority of the faces slant backward at different angles from near the external canthus. Some pass nearly straight outward for some distance on account of the prominence of the zygomatic processes. The body and spring of the speculum should rest against the side of the face, so as to gain support and thus be solid and firm. At the same time, the spring is depressed so that it will be below the field of operation and not in the way of the other instruments used.

Before the operator introduces the speculum he bends it to the desired angle, so that the main body and spring of the instrument will lie against the side of the face and be supported by the same. The position of the instrument as illustrated places the spring much below the level of the portion between the lids. The dotted lines show the main body of the speculum raised in case the zygomatic processes are very prominent.

After having the instrument made, the writer learned that Dr. Galezowski of Paris had been using an adjustable speculum for years. However, the two instruments are quite unlike; the adjustability is their only common feature.

THE USE OF PRISMS IN DETERMINING THE REFRACTION BY THE SHADOW.

CHARLES D. JONES, M.D.

Ophthalmologic Clinical Assistant, Massachusetts General Eye and Ear Infirmary; Oculist, Malden Hospital.

BOSTON, MASS.

Some time ago it occurred to the writer that advantage might be taken of the association of convergence with accommodation in estimating the shadow. If the convergence could be minimized or even changed to a divergence it seemed reasonable to expect a coincident relaxation of the accommodation. Now we have a simple method of producing a divergence by means of prisms and upon the basis of many examinations I have reached the conclusion that in some cases, in a limited number only, the method has a certain value. With a prism of about six degrees, base in, before the eye not

under observation, I have repeatedly seen the accommodation coincidentally relax in the fellow eye. Some time since I examined several cases very carefully, first without a prism, then with a prism, and lastly under full cycloplegia. Out of nine the three following cases were as successful as any:

	Shadow without prism.	With prism.	With cycloplegia.
Case 7.....	.75 O.U.	-1.25 O.U.	-1.25 O.U.
Case 8.....	+1.25 O.D. +1.25 O.S.	+1.50 O.D. +1.25 O.S.	+1.75 O.D. +1.25 O.S.
Case 9.....	+ .25 O.D. 50 + .50 O.S.	+ .50 O.D. 25 + .75 O.S.	0 0 + 1.50 O.S.

On the other hand, there were some eyes which did not relax at all with the prism, but did to the extent of from one-half to a whole diopter with the cycloplegia, while others relaxed for neither prism nor drug, maintaining always the same shadow.

The method is obviously applicable only in those cases having two fairly good eyes, but I have occasionally found it useful in cases where, the eyes having been strained from excessive work, the refraction continually changes, giving different shadows at brief intervals of time. In such cases the prism seems to have a steadying effect. I have never come across any mention of the use of prisms, but by no means claim any originality for the device, which may have been previously tried; and I would particularly emphasize the fact that the method is by no means always reliable, nor does it take the place of the cycloplegia.

Reports of Societies.

COLORADO OPHTHALMOLOGICAL SOCIETY.

Meeting in Denver, Jan. 16, 1907.

CASE 1.—Dr. W. C. Bane reported a case of a married woman, aged twenty-four, whom he saw first four days ago. O. D. V. = light perception; O. S. V. = 2/50. History of vision having failed 2½ years ago during pregnancy. Labor occurred during her seventh month, accompanied by convulsions and total blindness, recovery as above. Ophthal. O. D. disc atrophic; between macula and disc there is a triangular spot of pigment. O. S. disc atrophic, but shows a few nutrient vessels in nerve. Urine now free from albumin. The patient consulted Dr. Bane for advice as to the danger of her again becoming pregnant. Cross-questioning elicited the fact that she was about six weeks pregnant. Dr. Bane asked advice as to the advisability of terminating the pregnancy.

Discussion.—Dr. Edward Jackson had seen one case which went to term after such a previous history. Albuminuria was present; no ocular complications occurred; child was stillborn.

Dr. E. M. Marburg reported a case with two subsequent pregnancies.

Dr. J. A. Patterson mentioned two cases as follows:

CASE 1 had such complications during her first pregnancy. In three subsequent pregnancies the patient went to term with birth of healthy children.

CASE 2.—A second pregnancy occurred five or six years after the first. The first pregnancy was accompanied by albuminuric retinitis. The case went to term with birth of a healthy child. In both cases the eyegrounds were watched during the subsequent pregnancies. No albuminuria occurred, nor did the grounds show any disturbance.

Dr. Melville Black advised allowing the pregnancy to continue; the urine and eyegrounds to be under observation; the pregnancy to be terminated if the eye was found to be in any danger.

Dr. W. C. Bane exhibited a case of hemorrhagic albuminuria neuroretinitis. Ely T., aged 80, was referred by his family physician, on account of failure of vision. R. E. V. = 6/30. Oph. media clear. Fundus shows an angular mottled pigment deposit mixed with white in the macular region, of about one disc diameter. No stellate appearance. Media clear. Disc moderately swollen. Veins

one-half larger than normal and very tortuous. Some of them almost covered where they leave the disc. Numerous large-flame hemorrhages, several semi-white plaques about and above the macula. Patient complains of constant headache. Urine amber, acid, sp. gr. 1.012. Albumin, dense ring. Uric acid crystals, numerous large and small, finely granular, and coarsely granular casts, also a few hyaline casts. A few bacteria present.

Dr. Edward Jackson showed a case of choroidal changes due to hemorrhage. The patient whose vision previously was known to be perfect developed a small central scotoma, metamorphopsia, impaired vision, and a few days later, sudden blindness. Retinal hemorrhages were seen, with slight discoloration of the choroid at the macula. Then there suddenly appeared in the periphery of the macula a yellowish-white spot, one-third the diameter of the disc, having a dark but not distinctly pigment border. This spot gradually became darker, and at the end of a month was almost as dark as the surrounding fundus, but exhibited fine pigment markings throughout its area. All evidence of retinal hemorrhage had disappeared and vision had risen to $\frac{4}{5}$. The spot was believed to be due to exudate, perhaps hemorrhage in the depth of the choroid. The patient was taking large amounts of a medicine containing bromids and hyoscyamus for epilepsy. He did not use tobacco nor alcohol. There was no evidence of lead nor other poisoning, nor any other disease. He thought it might be well to consider the possibility of the deep hemorrhage having taken place at the time of an epileptic seizure.

Dr. Friedmann showed a case of central retina choroiditis with optic atrophy in a girl, age seventeen. He can learn that since her sixth year, apparently after an attack of measles, and after being exposed during her convalescence from this malady, to snow from an open window, her sight became blurred, with steady decline of vision, until at this time vision equals fingers at five meters, for each eye. The field is concentrically narrowed. He has not been able so far to demonstrate any scotoma. The patient's father is unknown to her, but nothing can be found to prove syphilis.

Discussion.—Dr. Black believes the condition to be stationary.

Dr. Patterson believes the condition to be stationary and that measles may account for the cause of the disease.

Dr. Jackson believes the macular lesion to have been the original trouble, but there is concentric contraction of the fields, showing it to be more than simple macular lesion, and may be either of syphilitic origin or from some toxemia.

Dr. Melville Black showed the following cases:

CASE 1.—Mr. W. B. M., aged 66 years. Forty years ago, while thrashing in California, his left eye became red and painful. Since then every external irritant causes the eye to become red. He was under the care of Dr. Stover of late, for an epithelioma of the lip. The x-ray has almost cured it. Dr. Stover applied the ray to the left lower eyelid, but it has not improved, acting rather as an irritant. The eye presents a partially everted lower lid, with rounded margins and no induration. He has a scar over the left temple, where some kind of skin growth, either lupus or epithelioma, had been excised four years ago. Dr. Black asked for diagnosis and treatment.

CASE 2.—A healthy young woman, about 30 years of age, consulted Dr. Black for frightful headache and loss of vision. The vision of the right eye has been failing for four months, vision = 5/40. The left eye, she thinks, is all right yet, vision = 5/20. The ophthalmoscope shows the retinae free from edema or hemorrhage. About the left macula there is a faint suspicion of radiating lines. The left nerve has an opalescent appearance with horizontal striations. Both nerves are swollen to an enormous degree, equally 5 D. She was referred to a neurologist, whose diagnosis is that of probable brain tumor.

The following case was reported:

Mr. H. E. D., aged 62, was presented at the October meeting as a case of incurable facial paralysis with diplopia from paresis of the inferior rectus of his right eye, and eversion and bagging of the right lower lid from relaxation of the orbicularis. Various operations were then suggested. The case is reported again to show how a mistake was made in supposing that his facial paralysis was incurable in spite of the fact that a neurologist had confirmed the diagnosis of paralysis and even made a bad prognosis, and how serious mistake would have been made had an operation been performed. He is now able to close his right eye, and has fairly good movement of the muscles of his face. He still has diplopia in the lower field. His lower lid was kept pulled up against the ball by painting a spot of collodion about the size of a nickel on the right temple a quarter of an inch from and a little below the external canthus. He was taught to apply this himself every morning. He has not used it now for two weeks. His facial nerve was entirely without power from July 4, 1903, following his accident, to January 1, 1904.

Discussion of Case 1.—Dr. Coover did not believe the case was one of epithelioma. He advised opening the canaliculus and applying ung. ichthyol $\frac{1}{2}$ to 1 per cent.

Dr. Marburg diagnosed the case as an inflammatory shrinking of

the lid, advising sol. iodine-vasogen 5 per cent., increased to 10 per cent., locally.

Dr. Bane thinks the history is against epithelioma, advising massaging the lid, rubbing toward the nose, and instructing the patient how to wipe his eyes. Men of this age are inclined to wipe away the overflowing tears with a downward sweep of the hand, which still further aggravates and continues the trouble.

Dr. Friedmann and Dr. Patterson believe that the fact that the x-ray has acted as an irritating rather than a calming factor tends to exclude the diagnosis of epithelioma.

Dr. Black, in closing, called attention to the florid complexion of the patient, believing such skins are prone to contraction as age advances, and as a consequence eversion of the lid is more liable to take place.

In this case the edge of the lid is destroyed, only a few thick white cilia remaining. The lid is rounded into the lower cul-de-sac. Consequently he does not believe application to the lid will improve it.

Dr. E. R. Neepor reported a case of burn from the sudden flashing before the open eyes of an electric discharge equaling 40 to 50 incandescent lamps. There occurred sudden blindness, swelling of lids, and much chemosis of lids and face, with scorching of scalp, brow and lashes. Pain in the eye was intense. Applications of beta-eucain, holocain and cocain gave no relief. One application of sol. dionin produced great reaction, but complete relief. He used it only three times, each time at an interval of twenty-four hours. Sight was restored.

Dr. Marburg reported a case of a man who has looked into the condenser of a Finsen ray lamp to examine it. No discomfort was noticed until the next morning, when congestion of the conjunctiva, without pain, followed. During the day a scant discharge was noticed and the fellow eye became involved. Despite treatment by various astringents the attack has continued, having now lasted one month. The ocular discomfort, which is simply the discomfort of a conjunctivitis, increases at night. The greatest relief is obtained from instilling 1-3,000 sol. adrenalin chlorid. No examination has been made of the secretions.

Dr. Black reported a case of burning of the scalp and face from a short current of 2,000 to 3,000 volts. Applications of castor oil relieved.

JAS. A. PATTERSON, Secretary.

MEXICAN OPHTHALMOLOGIC SOCIETY.

Meeting of Aug. 6, 1903.

Dr. M. Uribe Troncoso (presiding) read a report of a case of atheroma of the retinal vessels with retinitis circinata. In the discussion Ramos agreed with the lecturer as to the fact of diagnosis, and showed that the areas supplied by the retinal arteries had demonstrably lost their vitality, the vessels were much reduced in size and the areas supplied by them were consequently not nourished. It was interesting to be able to study so precisely atheromatous retinal vessels. Prognosis is grave, as hemorrhages may destroy the vision. He illustrated by two cases. The eye would ultimately be lost, he thought, and life itself was in danger from disease of the cerebral arteries.

Dr. Chacon considered the case exceptional, as he had not seen such a retinal condition, however frequently he examined cases with general atheroma. He called attention to the fact that the choroidal vessels seemed unaffected, a demonstration that the two systems were quite distinct.

Dr. Uribe Troncoso answered that probably the choroidal vessels were involved, as Jaeger in his Atlas presents the association of atheroma in such cases, although in this case the retinal pigment shows no change. The lesions are not those of choroiditis syphilitica, but rather such as Fuchs describes as retinitis circinata.

Dr. Ramos said that if atheroma is so common and associated retinal changes so rare, it is because the disease locates itself with predilection in certain places, but not exclusively so. In this case collateral circulation seems to be sufficient to preserve the nutrition of the retina. He thinks the choroidal vessels must be affected, though not visibly or demonstrably so.

Meeting of Oct. 8, 1903.

THE FREQUENCY OF TRACHOMA IN MEXICO.

Dr. Uribe Troncoso asked the society to collect data concerning the disease in various parts of the republic, especially as it related to indigenous peoples. This would be a help to Dr. Wernicke of Buenos Ayres, who was preparing a paper on the subject for the Latin-American Congress.

Dr. Chonez said that trachoma was very rare in Mexico, especially among natives, more frequently among Spaniards who had contracted the disease at home.

Dr. Velez had never noticed trachoma among native Indians, but he had in mixed races and Spaniards. He questioned the diag-

nosis in some cases as confusing trachoma with pericorneal conjunctivitis.

Dr. Uribe Troncoso had seen trachoma among the natives.

Dr. Chonez thought he could show a case in a native.

Dr. Velez would make two classes of natives—those living in the large cities and those who seldom or never left their native soil. Indians at home were cleaner than those in cities.

Dr. Chonez said that his native patient came to the city solely for treatment.

Dr. Montaña proposed that Uribe embody such questions in a letter to physicians in distant parts of the country.

Dr. Uribe Troncoso thought the idea a good one and suggested that the society officially ask: 1, With what frequency does trachoma show itself in any given locality; and, 2, does it affect the native?

Dr. Uribe Troncoso showed a case of sanguineous infiltration of the cornea in a woman of 50, who in May, 1903, received in the left eye a blow from a small stick. The blow produced a wound of the orbital arch from which there was much bleeding. The next day the whole region was swollen and the edematous lids could not be opened. At the end of eight days this diminished and then the patient noticed that she could not see at all, but she did not seek advice till June. The lids were now normal, but the conjunctiva injected; there was no trace of bulbar wound, the corneal surface seemed normal, but of a red color all over. The infiltration was less in the superior half, while the lower half was of a chocolate color, due also to a hyphemia which occupied the anterior chamber. The iris could not be seen. The tension was — (?). The patient complained of some periorbital pains. Dionin 5 per cent. was used, and atropin and hot compresses ordered. At the end of fifteen days the hyphemia was much less, but the corneal infiltration was still so great as to conceal the iris; ciliary injection was still noticeable, but the pain had diminished.

Absorption of the hyphemia lasted till August, the cornea became vascular above and remained thus for three months. Corneal infiltration (sanguineous) is rare; when it occurs the blood comes from the pericorneal vessels or from diffusion from the anterior chamber. Jocqs found in one case that the sclerotic had ruptured at the limbus and that the blood must have entered here. In this present case it would seem that the infiltration was not noticed at once and that consequently it came later from the anterior chamber through some rupture in Descemet's membrane.

Dr. Montaña presented the case of a man of 60 injured by a

blow, who had a pain for a month, hyphemia and dilated pupil, with vitreous hemorrhage. It looked like hemorrhagic glaucoma. An inferior keratotomy with iridectomy was done, after which the pain soon disappeared, the pupil became smaller and the patient could count fingers. He hoped for good results as to vision.

Dr. Chonez considered it traumatic glaucoma with incurable hemorrhage.

Dr. Velez proposed that a corneal puncture be made in Dr. Uribe Troncoso's case, in the hope of evacuating the blood and hastening the restoration of corneal transparency.

Dr. Uribe Troncoso said the idea was rational, but he hoped absorption would proceed without it, as he feared that operation might increase the evil.

BERLIN OPHTHALMOLOGICAL SOCIETY.

Meeting Feb. 18, 1904.

Professor Hirschberg, vice-president, in the chair.

Dr. Fehr showed a case of keratitis (Gitterförmig) such as Fuchs, Haab and others have described. The patient has been treated one and a half years and the disease commenced three years ago, progressing slowly. There is no etiology; there seems to be a family disposition.

Dr. Loeser presented a case of aneurism of the carotic interna which at the beginning had caused an ophthalmoplegia (external and internal) by pressure of the cavernous sinus. The history of the case was the following: The woman, 40 years old, had suffered from erysipelas nine months ago and suddenly showed the symptoms of a total ophthalmoplegia of the right eye and also an optic neuritis. Shortly afterwards lids and conjunctiva began to swell to such an extent that Dr. Loeser made an incision into the orbit, the consequence of which was that the lids and conjunctiva bled freely, causing a bluish discoloration and the eye could not be closed. After taking large doses of iodid of potassium (5 grams daily and more), the woman recovered, so that now there is only a slight exophthalmos and a paralysis of the left external rectus. Vision is normal. Dr. Loeser had been finally led to the diagnosis by the patient happening to complain of noises in the head; the pulsation could readily be heard, especially on the temple. Dr. Loeser stated that only 8 such cases are on record, most of them not being diagnosed before the autopsy was made.

Discussion.—Professor Hirschberg suggested that provided the diagnosis of Dr. Loeser was correct he would advise making an in-

cision; he was once called to do so, but refused to take the risk of the patient's bleeding to death.

Dr. Loeser replied that arterial bleeding was altogether impossible in his case, since the swelling was only due to compression and therefore the bleeding was of a venous nature. He did not think it necessary nor useful to ligature the carotid.

Professor Hirschberg showed a macroscopic section of a glioma (infant 8 months old), and spoke on the prognosis of glioma. He considers it very good so long as not more than two months have elapsed since the yellow reflex appeared and in case the retina only is involved. He enucleated differently than usual, using a stronger forceps (a veterinary one) with which he grasped the internal rectus and a neurotom (an obsolete knife of von Graefe's, something like the surgical tenotomes); in this case he cut 1 cm. off the optic nerve. A child 1 year old has an orbital optic nerve which is exactly 2 cm. long (Professor Orth investigated this subject).

Dr. Paderstein showed a microscopic section of a glioma which contained mainly rosettes.

Professor Greeff remarked that the old fashion of enucleating is quite fast enough; it just takes him one minute.

Professor Hirschberg replied that it takes him even less; still he advocated the new method for certain cases.

Professor Nagel described experiments he made to prove the existence of the new rays which Charpentier says go out from every human body. The rays had been discovered by Blondlot a few years ago and were called N rays after the city of Nancy, at which college both are professors of physics. These rays can be demonstrated in a great number of objects and have the power to increase the light emanating from the object. Charpentier discovered the fact that the human muscles and nerves, especially such as are functioning, emanate these rays; if a small fluorescent object is placed near the left temple it will begin to get lighter as soon as the man speaks. Nagel never could see an increase in the illumination, although he experimented the same way as in Nancy. He also believes it to be an optical deception, the more so because the fluorescent object should be small and should be seen by the periphery, although the rods are greatly subject to fatigue. He is surprised that scientists of such rank and fame can experiment on physics and totally neglect the elements of physiology. Thirty years ago one would not hesitate to declare the N rays a humbug, but now, since Blondlot, Charpentier and other well-known authorities in France continually publish new facts about the new rays, we are obliged to reinvestigate the matter. It is his opinion that the experiments made in

Nancy are wholly unsatisfactory, because the authors neglected a critical examination and also experimented under unfavorable circumstances.

Discussion.—Professor of Physics Rubens (Charlottenburger Hochschule) dwelt on the history of the N rays and stated that he has investigated each experiment, but never had obtained positive results; neither did English scientists who had gone to Nancy on purpose to see the rays. They seemed to be rays only grown on French soil and seen by French eyes.

Professor Lummer, of the same faculty, had also never been able to see any rays. Lately a French author believed that he photographed the rays; so long as such is not the case, Professor Lummer considers the whole matter nonsense. He asked Professor Nagel whether he believed so or not; it were high time to upset the belief in this scientific nonsense.

Dr. Czsellitzer remarked that six years ago a Parisian had discovered the fact that the human fingers emanate rays which he had photographed. Dr. Czsellitzer also obtained photographs of the fingers, but shares the opinion of another French author who ascribes the pictures to the warmth and the moisture of the skin; warm sausages would do the same.

Professor Nagel, in reply to Professor Lummer, said that he also believed the N rays nonsense, the result of suggestive powers.

DR. OPPENHEIMER, Berlin.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Tuesday, March 10, 1904.

Sir Anderson Critchett, F. R. C. S. E., vice president, in the chair.

CLINICAL EVENING.

Mr. J. R. Lunn showed a patient, an elderly man, in which there was compression of the retinal veins by thickened arteries in one eye only, although the vessels in the other eye showed some degeneration. There was a large area above the macular region that was occupied by a hemorrhage.

Owing to the serious view of these cases taken by Mr. Gunn he proposed to bleed the patient. Mr. Nettleship suggested purging.

Mr. Gunn said that although he looked on these cases in a poor light, yet as there was no albuminuria present he thought that this case was rather more favorable.

Mr. Grimsdale exhibited a young man, age 24, who had suffered from gonorrhoeal ophthalmia a year ago, resulting in a dense trauma

in one eye, the other being normal. When light is allowed to shine into the right or good eye and the pupil contracts, the other eye rotates distinctly upward, and when the light is withdrawn the eye rotates downward. This condition has been previously noticed after head injuries, but has not before been described as occurring in such a case as the present one.

Mr. H. L. Eason showed a case of what he took to be a persistent hyaloid artery. The right eye had defective vision and nystagmus. On ophthalmoscopic examination the vessels were seen to emerge from the lower border of the disc and one branch is seen to run forward and open in a funnel-shaped aperture against the ciliary body below the iris. It was a question whether it should be considered an inflammatory condition or a persistent hyaloid artery. Mr. Treacher Collins said he saw no reason for doubting that it was really a persistent hyaloid, but in addition there had been an atypical development of the vitreous.

Mr. Eason also showed a case of albuminuric retinitis in a patient who three years ago had acute nephritis, anasarca and detachment of both retinae. His general condition greatly improved and the detachment on both sides subsided.

Mr. Claud Worth showed a member of a family in which congenital dislocation of the lens was present in five generations. Twenty-four years ago Mr. Stanford Morton had described the family in a paper in the Royal London Ophthalmic Hospital Reports, and since then two more members had been born, both of which had the same condition. The chairman thought such a series of cases most important as showing the influence of heredity.

Mr. Nettleship thought that possibly a slight luxation of the lens in young children might account for the high degrees of myopia that are occasionally seen and which do not get worse as time goes on.

Mr. A. H. Thompson showed a girl aged 10 who had a congenital coloboma of the iris downwards in one eye. Near the periphery of the fundus and below the macula is a white patch with indefinite edges of a band of healthy choroid crossing it, which, in view of the condition of the iris, he took to be a coloboma. The vision is 6/18 and the left eye is normal.

Mr. Bishop Harmon showed a child about 5 years of age with the following abnormalities: The anterior fontanelle is not yet closed. There is a coloboma of each upper lid, a coloboma of the iris and choroid on one side, two dermoids of the globe on the right side, very tortuous retinal vessels, the mouth is imperfect and there is a depression on the sacrum representing the position of a tail

(fovea sacralis). There are two ears on the right side and four on the left. The child can not walk and says only a few words.

A. H. Bennett exhibited a case of tubercular (syphilitic ?) disease of ciliary body and iris. Maud I., age 9 years, first seen Oct. 12, 1903, for refractive errors. R. V. = 6/18, L. V. = 6/9. K. P. in R. Atropin ordered, but she did not return for retinoscopy. On Feb. 18, 1904, she came to Mr. Claud Worth's outpatient clinic at West Ham Hospital. Right eye reddened one month, sight failed, but eye had never been painful. R. V. = hand movements at one foot. L. V. = 6/9. R. ciliary congestion. Cornea hazy. Gross scattered, macroscopic oily looking K. P.; tension normal; anterior chamber normal. Iris highly discolored (yellowish); complete post-synechia and pupil occluded with exudate. Five tubercular looking outgrowths from angle between cornea and iris, two conjoined below and to nasal side, of size and shape of a shriveled barley corn. A third below and to temporal side, a fourth on temporal side and the fifth above. Those latter about the size of No. 6 shot. The outgrowths cinnamon yellow colored, their surfaces fluffy as though sublimed with fine exudate. Eyeball not tender; no fundus reflex.

Left eye normal except for slight ciliary redness. Patient treated with atropin in R. Internally with hydrarg. cum creta and syr. ferri-phos. comp.

One week later R. cornea brighter and much of the exudate had disappeared from anterior chamber.

One week later R. cornea fairly clear, the exudate having mostly disappeared. The outgrowths now are pale yellow, and small blood vessels are seen on their surface and also running transversely across surface of iris. Left eye now shows typical pyramidal K. P. Lungs healthy; cervical glands enlarged; no fundus change in left eye. Vision still 6/9. March 10. Slight increase of K. P. in left eye; no pain in either eye; no tenderness. T. N.

The family history discloses nothing specific nor tubercular; parents robust.

I am indebted to Mr. Claud Worth for the privilege of showing this case.

CHICAGO OPHTHALMOLOGICAL AND OTOLOGICAL SOCIETY.

March 8, 1904.

Dr. H. B. Young reported a case of primary sarcoma of the ciliary body. A young man about 19 years of age, first seen in June, 1903,

presenting slightly discolored spot at the ciliary border of the iris below. History of previous traumatism by a blow from a knot of wood on the orbital margin and side of the nose. Personal and family history good. The tumor, which is highly vascularized, is seen as an oval, brown-red mass located centrally below iris (iridodialysis) and extending up between iris and lens into the lower pupillary space. No corresponding growth observable behind the lens. Enucleation was advised. Dr. Young stated that an interesting feature of the case to him, aside from its rarity, was the possibility of a connection between the traumatism and the tumor.

This interesting case was discussed by Drs. J. E. Colburn, C. D. Wescott, W. F. Coleman and W. H. Wilder, all agreeing that in spite of the youth of the patient, the clinical findings are such as to confirm the probable diagnosis of sarcoma, and concurred in the advice for immediate enucleation.

Dr. W. H. Peck showed a case in which yellowish dots were present along the course of the retinal vessels in a female, age 24; failing vision for past twelve years, lately increasing to such an extent as to prevent continuance in occupation. Constant drawing pain in eyes, and headache. Vision, R. and L., 20/40. The ophthalmoscope shows slight tortuosity of the blood vessels of the retina in the neighborhood of the macula, and in some places along the course of the blood vessels are seen small yellowish spots. There is slight photophobia. Urinalysis and blood examination are negative. Dr. Peck considers this a proliferation of the lamina vitrea, distinguishing it from "Gunn's dots" on account of the presence of lowered vision.

Dr. H. W. Woodruff called attention to the fact that we rely largely on the subjective symptoms as to whether the diagnosis shall be "Gunn's dots" or retinitis punctata, the practical point being whether this is a colloid degeneration involving normal tissue, or tissue which has been altered by inflammation.

Dr. J. E. Colburn said he had seen these dots so frequently where vision was not disturbed that he believed their presence was merely an incident.

Dr. E. F. Snyder believed this case was one of retinal disturbance, but was in doubt as to the yellow dots being Drüsen.

Dr. Franklin Coleman presented a boy, age 12, with optic atrophy. Between 5 and 10 years of age he had two symptoms of brain tumor—vomiting twice a week and severe headache; the past two years good health. Oct. 3, 1903, O. D. V. light perception, and O. S. V. 20/120. Complete optic atrophy in the right eye. Atrophy of disc and a choroidal patch towards nasal side. The so-called sinusoidal

current from the Victor dynamo was used; Dr. Coleman believes this current to be more stimulating to the optic nerve than the galvanic. He has abandoned the use of strychnia in atrophy of the optic nerve. At the present time O. D. V. 20/80, O. S. V. 20/20. Optic discs unchanged in appearance.

Discussing this case, Dr. H. Gradle emphasized the necessity of distinguishing between the different forms of atrophy of the optic nerve, namely, the typical progressive atrophy, usually tabetic, and the form resulting from some intracranial lesion. In fact, he declared it was quite a question whether the typical progressive atrophy is not always indicative of tabes. Universal experience has shown the futility of all present modes of treatment in ordinary progressive atrophy. Retardation may occur, but it is questionable whether such is the result of treatment or not. On the other hand, the atrophy secondary to intracranial lesions, while sometimes progressive, is often stationary, and occasionally can be considerably improved, as in Dr. Coleman's case. It is in this class of cases that strychnia and other modes of treatment may lead to satisfactory results.

Dr. Coleman showed a man, age 42, with specific iritis, both eyes, two and a half years ago, with numerous opacities in the vitreous, and later suffered a relapse. First seen February 22. O. D. V. = fingers at 8 feet, O. S. V. = perception of light. Treatment, galvanic current, 10 milliamperes, with water cups, negative to eyes and positive to nape of neck, ten minutes daily. Present vision, O. D. = fingers at 16 feet, O. S. V. = 20/120. Dr. Coleman believes that medical treatment could not replace electricity in these cases, and that the indication for the special form of current used in any case depends on the physiologic and electrolytic effect of that current.

Dr. Faith showed a case of spongy iritis, male, age 41. Laborer in a blast furnace for a number of years. 'Came eight days ago with history of eye trouble for three weeks preceding. Some pain the first part of the attack, but none for past ten days. There was a history of injury some twelve years ago, as the result of which a corneal scar and anterior synechia may be seen. The man is in perfect health, weighs 190 pounds. No history of tubercular disease in family can be ascertained. He has no distinct evidence of syphilis, though there are a number of scars on arms and shoulders, the result of burns from flying sparks. The anterior chamber was more than half filled with a spongy or gelatinous exudate, with convexity above, and which would not change in position. Tension normal. No complaint excepting loss of vision. The pupil, which was slightly contracted, loosened on instilling atropin. On assuming the re-

erect position the whole mass changed to the temporal side, as seen to-night. In the hospital the chart showed a slight rise in temperature in the evening. In twelve hours after giving 2 m.g. of tuberculin in the back there was a temperature reaction of $103 \frac{2}{5}$ degrees F., followed by an increase in the injection about the eye. With hot applications several times a day, the mass has grown somewhat thinner, but otherwise is little changed. There were two spots, apparently of blood, in the lower part of the exudate when first seen, and it had a paler appearance than at present. The case was supposed to be a spongy iritis.

Discussion.—Dr. Snyder said the case was so suggestive of syphilis that he would advise that a strong course of anti-specific treatment be tried tentatively.

Dr. George F. Suker said that he had seen a great many men with these copper-colored burns from sparks in a smelting furnace, some of whom had syphilis, which could not be differentiated from these dermic spots, as seen on this patient. He doubted the value of the tuberculin reaction as proof positive of a tuberculous lesion, or its failure as evidence to the contrary. The rise in temperature and the suspicious-looking skin markings would point to a syphilitic basis for the spongy iritis. It is an accepted clinical fact that in syphilitics tuberculin will cause a rise in temperature more often than in the non-syphilitic, though no tubercular focus can be demonstrated.

Dr. Faith, closing the discussion, said that the removal of the growth by iodid of potash would not prove that he had syphilis. The majority of cases of spongy iritis get well without much treatment. There is little in the literature on the subject, but such as there is indicates it is due to the escape of the fibrin from the blood, and sometimes of the blood corpuscles from the parenchyma of the iris, thus producing the jelly-like mass.

Dr. Holinger showed a child with occlusion of the Eustachian tube, the interesting feature of which was retraction of the tympanum, showing the stirrup through the posterior half of the drum-head.

F. A. PHILLIPS, Secretary.

BRITISH MEDICAL ASSOCIATION.

SECTION ON OPHTHALMOLOGY.

Mr. Marcus Gunn will open the discussion on Retro-ocular Neuritis, Dr. Hill Griffith that on Intra-ocular Hemorrhage and Systemic Disease, and Mr. Holmes Spicer that on Keratitis Profunda.

The following papers are among those that will be presented to the Section:

The Operative Treatment of High Myopia. Mr. W. Adams Frost.

Short Note on Two Cases of Disease of the Canaliculi. Dr. A. H. Benson.

Upon the Maturation and Extraction of Senile Cataract. Prof. M. McHardy.

Visual Acuity in Savage Races. Dr. W. H. Rives.

(a) On Glaucoma and Glaucoma Operations; (b) on Visual Efficiency After Accidents to Sight from the Point of View of Employers' Liability. Dr. G. A. Berry.

Reforms in the Notation of the Acuteness of Vision. Dr. Emile Javal. Paris.

Sepsis and Intra-ocular Inflammation. Mr. W. Lang.

Conclusions as to the Vision of Birds Based upon a Consideration of Mimetic Color and Pattern in Insects. Professor Poulbon, F.R.S.

Ophthalmoplegia Externa. Dr. James Taylor.

Glaucoma. Mr. Priestley Smith.

The Temperature of the Cornea and Its Relation to Corneal Therapeutics. Dr. Angus McGillivray.

Paracentesis of the Cornea for the Relief of Tension Consequent upon Tearing Opaque Capsule. Mr. T. Pridgin Teale.

Prof. J. Herschberg of Berlin, Dr. C. A. Oliver of Philadelphia and Dr. Emile Javal of Paris will be guests of the Association.

Correspondence.

A NEW CATARACT KNIFE—MATTER OF PRIORITY.

WASHINGTON, D. C., March 28, 1904.

To the Editor:—I note that Dr. Melville Black of Denver illustrates in your February number a new cataract knife. Dr. Black claims priority both as to purpose and manner of using his probe-pointed knife. I beg to state that, so far as I can judge, his knife is identical in shape with a straight blunt-pointed knife illustrated by Mackenzie in his valuable "Treatise on the Eye," on page 752. It also seems that it is used for the same purpose, i. e., to avoid injuring the iris. As to the method of using the knife it seems that Dr. Black is original, as Mackenzie primarily intended his knife to be used in enlarging the opening where there had been no counter puncture made; however, he does suggest making a counter-puncture with another knife and finishing the operation, in some cases of emergency, where a counter-puncture has been made, *exactly* as does Dr. Black. We read the following from Mackenzie in reference to his knife: "The common extraction knife being withdrawn, the narrow-bladed probe-pointed knife (Fig. 100) is to be introduced through the aperture previously made, and insinuated along the posterior surface of the cornea, avoiding the iris as much as possible. . . . The incision is to be extended till a semi-circle of the cornea is divided." And on page 753 he says: "If the double knife (he here speaks of a double knife, one blade probe-pointed and one sharp-pointed) is not at hand, a probe-pointed knife may be used instead, and when it has reached the nasal side of the cornea, an opening may be made over its extremity with another knife so as to allow it to come through, after which the incision is to be finished exactly in the same way as if the sharp-pointed knife only had been employed." On page 754 we read: "Some operators make it a constant practice not to complete the section of the cornea with the usual cataract knife, but to withdraw that instrument when the incision is nearly finished, and to divide the remainder of the cornea with the scissors or a small probe-pointed knife. To the straight-edged knife some prefer one with a convex, and others with a concave edge. The practice is decidedly proper, when the operator observes that he has unfortunately so inclined the edge of the knife first employed that, if he continues to press it onward, the incision will probably extend beyond the cornea and divide the iris or scler-otica."

Cordially yours,

1404 L Street, N. W.

OSCAR WILKINSON, A.M., M.D.

Abstracts of Recent Ophthalmic Literature.

"FESTSCHRIFT" IN CELEBRATION OF THE SEVENTIETH BIRTHDAY OF GEHEIMRAT PROFESSOR D. WILHELM MANZ, FREIBURG.

Supplement to "Klinische Monatsblätter für Augenheilkunde,"
1903.

EDWARD A. SHUMWAY, M.D.,
PHILADELPHIA.

The volume contains the following set of papers, contributed by Professor Axenfeld and his assistants in the clinic at Freiburg, in Breisgau, which are well worth careful study.

Concerning the Occurrence of Retinal Detachment and the Importance of General Vasomotor Disturbances (Angelucci's Symptoms) in Hydrophthalmus. Professor Axenfeld discusses, in this paper, the outcome of cases of hydrophthalmus, remarking on the rarity with which this condition is seen in patients beyond the twentieth year of life, even in blind asylums. Such eyes are exposed to many secondary changes, which alter their form. Some are ruptured by comparatively slight blows, and some apparently without any injury; there is also the possibility, as Michel states, of retrochoroidal hemorrhage, and of hypopyon-keratitis, with destruction of the eyeball. However, in many cases a spontaneous phthisis bulbi occurs, without previous rupture, or corneal infection, just as in cases of absolute glaucoma. In the latter, this seems to be due to retinal detachment, which is the final stage. Increased intra-ocular tension and detachment of the retina are in exact opposition, so that it is very seldom found before blindness is complete. In hydrophthalmus retinal detachment has not been described hitherto. Axenfeld, however, gives the anatomic report of two cases in which it occurred. In the second case the detachment was diagnosed ophthalmoscopically before blindness was complete; three other cases are mentioned in which detachment appeared, but the anatomic examination was not made. Axenfeld believes, therefore, that this retinal detachment may be the cause of the final blindness in hydrophthalmus, and produce the reduced tension, which may lead to gradual atrophy, if other changes do not appear and give rise to renewed tension. The detachment, indeed, may be much more frequent than is generally assumed, as cataract and

further secondary changes soon prevent ophthalmoscopic examination.

Axenfeld also discusses the pathogenesis of primary hydrophthalmus, and especially disputes Angelucci's claim that it is the result of a yet undetermined, congenital angio-tropho-neurotic process, the original disturbance of function being in the sympathetic centers in the medulla, and that certain symptoms in the vascular system resulting from this disturbance are always present, viz., excitability, tachycardia, sudden dilatation of the vessels of the face and head, sensation of heat, etc. Axenfeld admits that many of his cases have shown these signs, but shows by reports of a number of his own and Heine's patients that they are by no means constant, even in primary hydrophthalmus. He also points out the fact that extirpation of the sympathetic thus far has had no favorable results. Hence Angelucci's theory that the increase in the size of the eye and in its secretion of fluids is due to secretion neurosis produced by anomalies of the sympathetic in no wise offers an exhaustive explanation of the facts.

Pathologic and Anatomic Investigations of Experimental Endogenous Tuberculosis of Rabbits' Eyes. — Stock gives the final results of his experimental work in rabbits, which he has published in part in an earlier paper in the *Monätsblätter*, and as the findings were so constant, he believes he can report conclusively upon the appearances produced in the choroid and iris. Emulsions of tubercle bacilli were injected into the marginal vein of the ear, and careful microscopic examinations of the eyes were made after the death of the animals. He offers the following conclusions: These experiments, like his earlier ones with *Bacillus pyocyaneus*, show that when the organisms are introduced into the blood in rabbits, the eyes, together with the lungs and kidneys, are organs in which the bacteria readily settle and cause infection. This endogenous infection has, however, an entirely different course from the tuberculosis of the eye produced by direct inoculation of virulent organisms in the anterior chamber or vitreous body. While the latter leads usually to caseous tuberculosis of the iris or to panophthalmitis, and is associated with external evidences of inflammation, and causes loss of the eye, the former shows no inflammatory reaction externally and has an undoubted tendency to spontaneous recovery. Stock believes that this lessening of the virulence is due to the introduction of the organisms through the blood channels; they remain in the vessels, and, therefore, can not act so rapidly upon the surrounding tissues, while the body has a better opportunity

to assemble its protective substances (leucocytes and anti-bodies). In the choroid the foci of disease were usually found in the innermost layers (the chorio-capillaris), and only rarely in the outer ones. They seldom protruded above the surface, either ophthalmoscopically or microscopically, and seldom showed any tendency to caseation. This is exactly opposite to the conditions in man, as miliary tubercles here practically always have a decided prominence toward the vitreous and a tendency to central caseation. In the iris, tubercular nodules were always present, and were quite readily seen, because the rabbit's iris is normally very smooth and regular. Stock believes that these nodules would be found more frequently in chronic iritis in man, if the iris were examined more carefully and repeatedly with a Zeiss loupe.

Histologic Examination of Blepharoconjunctivitis Simplex, Produced by Diplobacilli. Stock had the opportunity of examining the entire conjunctival cul-de-sac histologically in a case of diplobacillus blepharoconjunctivitis. He found the epithelium of the lid margin thinned, while the conjunctival epithelium showed an increase in the number of its layers, and an enormous number of goblet cells, especially in the transition folds. The subconjunctival tissue was thickly infiltrated with round cells, which penetrated between the cells of the epithelium, but there was no tendency to the formation of follicle, as in trachoma or conjunctivitis folliculosa. There were also many epithelial invaginations (so-called glands of Henle) in the mucous membrane near the lid margin. The infiltration was very slight beneath the conjunctiva of the eyeball. The bacteriologic examination had shown an almost pure culture of diplobacilli.

A Clinical and Anatomic Contribution to Metastatic Ophthalmia.—A. Bietti reports three cases of metastatic ophthalmia. The first was the companion eye to one previously reported by Axenfeld. The original infection was an ulcerative endocarditis due to pneumococcus infection. In both eyes metastatic ophthalmia resulted, and the choroid was found to be the seat of the infection in each. The second case was one of bilateral severe chorio-retinitis and inflammatory detachment of the retina in a child two years old, with complete amaurosis, in which there was a spontaneous recovery, with restoration of vision, and disappearance of the detachment. The exudation was metastatic in character, and followed an attack of bronchopneumonia and chicken-pox. The third occurred as the result of puerperal infection, and was notable for the comparatively mild course of the process. The result was phthisis bulbi, but

there was no perforation of the sclera, which usually takes place in puerperal infection.

Concerning the Histology of Pannus Cornealis Trachomatosus.

—A. Bietti gives the microscopic description of two eyes which, clinically, had been affected with pannus trachomatosus. He found Bowman's membrane destroyed over the upper two-fifths of the cornea; in the lower three-fifths, however, it was well preserved, and the pannus tissue was inserted between it and the epithelium. It consisted of a round and spindle-celled infiltration, with blood vessels and connective tissue fibers. The presence of the connective tissue corresponds to the clinical appearance of opacities in the cornea. This situation of the pannus tissue *in front of* Bowman's membrane corresponds to that accepted by Fuchs and most of the writers on the subject, but is in contrast to that found by Rachlmann, Greeff and others, who assume that in true pannus trachomatosus, in contradistinction to pannus degenerativus, the infiltration is *beneath* Bowman's membrane. Bietti describes an infiltration also of the episcleral tissues—a superficial and a deeper form—the superficial one being the most prominent. Bietti thinks that the conflicting reports show that in true trachomatous pannus the infiltrate in the cornea may be at times in front of Bowman's membrane, and at times back of it, perhaps as the result of the preponderance, respectively, of the superficial or deep episcleral infiltration. The former cases would correspond, perhaps, to those in which the pannus is rapidly absorbed, and the latter to those in which absorption occurs very slowly and is incomplete.

What Importance Have Diphtheria Bacilli and Related Organisms in the Etiology of Simple Conjunctival Inflammations?—

A. Bietti has taken up the question of the virulence of the organisms of the diphtheria family, which are frequently found, usually associated with other bacteria in various forms of catarrh of the conjunctiva. Contrary to the results obtained by Pes, he found that they were entirely avirulent for animals, and had no immunizing effect in animals inoculated with small doses of virulent diphtheria toxin, so that the bacillus can not be compared with the true Loeffler bacillus. Virulent diphtheria organisms rarely occur on the conjunctiva, and as cultures of the so-called xerosis bacillus failed to produce catarrh when introduced in a number of human conjunctivæ it can not be considered the cause of catarrhal conjunctivitis. Bietti controverts completely Pes' assumption that the xerosis bacillus and the Koch-Weeks' bacillus are identical.

CONTRIBUTIONS TO THE RARE INTRAOCULAR TUMOR FORMATIONS.

1. A Melanosarcoma of the Ciliary Body in the First Stage of Its Development.—Derby describes a small melanosarcoma of the ciliary body, occurring in an eye affected with corneal ulcer, in which the cause of the attacks of acute, hemorrhagic glaucoma was unsuspected until the enucleated eye was subjected to microscopic examination.

2. A Primary Sarcoma of the Iris, Originating in a Nevus Vasculosus Iridis.—A case of this rare condition is reported by Kayser. The nevus had been noticed in the eighteen-year-old girl from birth, as a peculiar red spot, which was at times more prominent than at others, but caused no trouble until hemorrhages occurred in the anterior chamber. The spot began to grow, two years before, and the hemorrhages recurred a number of times. The tumor occupied the lower outer quadrant of the iris, was in contact with the cornea, and showed a nodular surface, with a reddish color, shading into a gray-brown. Microscopic examination showed the presence of a large number of cavities lined with endothelial cells, between which the stroma consisted of masses of spindle cells. The growth had evidently arisen from the nevus vasculosus. Such telangiectatic tumors of the iris are very rare. Two similar cases were reported by Alt in 1901, and others have been recorded by Mooren and Owen. Kayser agrees with Wood and Pusey that in the presence of sarcoma of the iris, enucleation should be performed. His case showed marked tendency to metastasis and infiltration of neighboring parts of the eye.

3. Metastatic Carcinoma of the Choroid.—Krugenberg's case differed from the usual metastatic carcinomas of the choroid in protruding far into the interior of the eye, instead of presenting a low, flat form. This was probably due to a peculiar dropsical degeneration of the connective tissue between the alveoli of carcinoma cells, and the formation of large cysts, which formed a considerable portion of the tumor mass. He collects the literature of 37 cases. In 25 of these, the original growth (his own case included) was in the mammary gland. Carcinoma of the uterus rarely leads to metastasis in the eye. The prognosis as to life is very gloomy, as death usually occurs within a year. Both eyes are quite frequently affected, and it may be generally distinguished clinically from primary choroidal sarcoma by its low form, and the greater rapidity of its growth. A similar degeneration of the interalveolar connective tissue has never been noted.

4. Anatomopathologic Examination of a Gumma of the Ciliary Body.—By Fred Tooke. A typical gumma of the ciliary body, with necrotic areas, and perforation of the sclera, occurring within a year after the initial infection. The author collects 22 cases in which microscopic examination was made. True gumma occurs very seldom in the eye, and usually in the virulent forms, so-called "galloping syphilis." The ciliary body is the part most frequently affected.

Concerning the Dependence of the Action of Eye-Drops Upon Their Temperature.—G. S. Derby made a number of experiments to test the effect of differences of temperature of homatropin solutions upon the rapidity of absorption and action in the normal eye. The results were not uniform, but in 60 per cent. of the cases the eyes reacted more quickly to the warm drops than to the cold ones, the difference being more marked the warmer the solutions. Derby believes that under ordinary circumstances the use of warm solutions in ophthalmology would be of advantage. They are less unpleasant to the patients, and hence are preferable, especially in the treatment of small children. Professor Axenfeld has had a thermaphore constructed for his clinic in which the solutions are kept heated to a definite temperature, and has found less difficulty in handling the children since its introduction.

A Contribution to the Pathology of the Optic Nerve in Affections of the Brain.—1. Recurring choked disc with thrombosis of the vena centralis retinae in sarcoma of the frontal lobe. 2. Menstrual disturbances and optic nerve atrophy in basal tumors. H. Yamaguchi reports a case of sarcoma of the frontal lobe, with relatively early blindness and atrophy of the optic nerve following choked disc. After disappearance of the swelling and complete degeneration of the papilla, swelling again appeared, during the gradual growth of the tumor, with high-grade venous congestion and numerous retinal hemorrhages. The condition was bilateral. Microscopically the swelling was found to be the result of an enormous thickening and edema of the lamina cribrosa; the direct cause was a thrombosis of the central vein, which was constricted at its point of exit through the dural sheath of the nerve posteriorly. The gradual growth of the tumor, with high-grade venous congestion and thinks that no conclusions can be drawn from the case as to the pathogenesis of the beginning of choked disc in general.

Yamaguchi also reports four cases of undoubted tumor of the base of the brain in which optic neuritis was absent. They were typical examples of the fact that tumors in the region of the chiasm,

in comparison with others, relatively rarely cause choked disc. In three cases there were decided disturbances of menstruation. He cites the cases as a warning against ascribing cases of optic atrophy too readily to amenorrhea. With basal tumors, not only choked disc, but relatively often simple descending atrophy of the nerve may occur, and at the same time the tumor may lead to amenorrhea.

Stone Formation in the Excretory Duct of the Lachrymal Gland.—Levi found a concrement in one of the excretory ducts of the lachrymal gland, which had been removed after extirpation of the lachrymal sac, because of persistent epiphora. No similar case has been described, and in this respect the lachrymal gland differs decidedly from the salivary glands. Two reasons are assigned for this, first, the exceedingly fine openings of the lachrymal ducts, which make the entrance of foreign bodies difficult; secondly, the relatively thin secretion of the gland, and the absence of solid constituents.

Contribution to Our Knowledge of Epithelial Tumors of the Lachrymal Gland.—Walter Schulze gives a detailed microscopic report of a tumor of the lachrymal gland which was removed by Krönlein's operation, and comes to the conclusion that the diagnosis should be carcinoma. As the majority of tumors of the lachrymal gland reported in recent years have been diagnosed endothelioma, the author discusses the question of differential diagnosis, and warns against considering a tumor an endothelioma, because of the presence of certain characteristics, *e. g.*, "pearl formation," which may be present also in epithelial tumors of the lachrymal gland. He thinks that many cases which have been diagnosed endothelioma are rather to be considered as epithelial in character. In any doubtful case serial sections should be made through the entire tumor.

A Contribution to Disease of the Optic Nerves in Purulent Cerebrospinal Meningitis.—Dr. de Lieto Vollaro made microscopic examinations of the optic nerves and eyeballs in five cases of purulent meningitis; in four, bacteria were found, and of these only one showed a penetration of the organisms beyond the optic foramen into the orbital portion of the nerve, although the organisms were present in large numbers in the exudate surrounding the chiasm, and the intracranial portion of the nerve. These results confirm Axenfeld's findings in two similar cases, and are probably to be explained by the blocking of the intervaginal space at the optic foramen by the inflammatory exudate, so that the communication between the cranial cavity and lymph spaces of the nerve is

interrupted. As the organisms were not present in the nerve the papillitis in these cases must be due to the action of the toxins produced by them, and when choroiditis appears, it must be metastatic in character, and not due to transmission by the nerve sheaths. The presence of a marked perineuritic and interstitial infiltration of the nerve in the bony canal is of importance for the well-known cases of double retrobulbar amblyopia, after meningitis, which usually show no ophthalmoscopic signs, and often recover completely.

On the Formation of Anastomoses and Their Prognostic Significance in Thrombosis of the Vena Centralis Retinæ. — Hornum reports six cases of thrombosis of the central vein of the retina, with retinal hemorrhages, in which the vision returned to normal, or was much improved by the formation of anastomoses between the distal end of the obliterated vessel and one of the other branches of the central vein. A number of cases of anastomosis of retinal vessels have been reported. In most of them the anastomosis has been between venous trunks. One case of arterial anastomosis, one between a vein and artery, and one between retinal and cilio-retinal veins, have been described. When a vein is occluded, the pressure is increased, the communicating branches are dilated, and as arterial blood continues to be supplied to the retina and the function is not so quickly destroyed as in occlusion of an artery, there may be complete return to normal. This is quite frequent in thrombosis of branches, but less frequent when the main trunk is affected, as the destruction of the retinal tissue is more intense. The formation of anastomoses in cases of retinitis hemorrhagica is, therefore, of great prognostic importance.

A Contribution to the Pathologic Anatomy of Luxation of the Lens, and Chorioretinitis, Together with Remarks on Chalk Deposits and Epithelial Thread like Conglomerates. — Werneke gives the anatomic description of an eye in which a long dislocated, partially absorbed lens had caused an intense atrophy of the entire uvea and retina, and the formation of a thick glass-like, hyaline membrane in the anterior chamber.

Notes and News.

ITEMS for this department should be sent to Dr. B. E. Fryer, 520 East Ninth Street, Kansas City, Mo.

THE French Congress of Ophthalmology will convene at Paris, May 2, 1904.

DR. IDA R. GRIDLEY CASE, a well-known ophthalmologist of Collinsville, Conn., died the 15th of March, 1904.

DOCTORS Robert Sattler and Derrick T. Vail have been elected ophthalmic surgeons to the Cincinnati Hospital.

AT the annual meeting of the New York Academy of Medicine, Dr. Charles S. Bull was elected corresponding secretary.

THE American Ophthalmological Society will hold its next annual meeting at Hotel Chelsea, Atlantic City, July 13 and 14, 1904.

DR. J. W. SCALES of Pine Bluff, Ark., entertained the Jefferson County Medical Society at a banquet in the Hotel Trulock on his *ninth* birthday, February 29, 1904.

DR. WILLIAM W. SEELEY of Cincinnati died on November 7. He was a graduate of the Medical College of Ohio in the class of 1864. He held the chair of ophthalmology in the Medical College of Ohio for many years.

DR. CHARLES A. OLIVER of Philadelphia is now associated with Dr. Sydney Stephenson of London, Eng., in the editorial management of *The Ophthalmoscope*, a monthly journal of much the same type as the OPTHALMIC RECORD.

NEW HOSPITAL FOR EYE DISEASES.—The building at One Hundred and Eighteenth Street and Pleasant Avenue, New York, a three-story brownstone structure intended to supply the needs of ophthalmic patients in the vicinity, is nearly ready for occupancy.

THE date of the meeting of the Tenth International Congress of Ophthalmology has been changed to September 13-17, 1904. Only those papers will be discussed which have been sent to Prof. Dr. Mellinger, Bâle, Switzerland, before May 1.

AMONG the annual appointments on the medical and surgical staffs of Mercy Hospital of Denver for 1904 were the following: Ophthalmology and Otology—Dr. Edward Jackson, Dr. John Chase, Dr. D. H. Coover, Dr. E. W. Stevens and Dr. William L. Hess.

THE Russian ophthalmological journal, the *Westnik Oftalmologic*, will hereafter be issued from Moscow and not from Kief, as heretofore. The former editor, Professor Chodin, owing to illness, has given place to Professors Belljarninow, Golowin, Ewetzky and Krjukow.

A BOOK of 500 pages and 250 illustrations, entitled "The Common Diseases of the Eye; How to Detect and How to Treat Them," has just issued from the press of G. P. Engelhard & Co., Chicago. The authors are Drs. Casey Wood and Thomas A. Woodruff, and the work is intended for undergraduate students and general practitioners.

HEALTH BOARD BARS 100 SCHOOL CHILDREN.—As a result of the medical inspection, 100 school children have been excluded from the schools by order of the New York Board of Health. Of these 35 were suffering from trachoma, 16 from conjunctivitis, 15 from parasitic diseases, 3 from skin diseases, and 1 from tonsillitis. They are under the care of nurses provided by the city.—*Journal A. M. A.*

THE Ophthalmological Club of Buffalo, N. Y., is now in its fourth year of existence, and in its reorganized form, by which its membership has been much enlarged, it is most prosperous. The March meeting was held at the residence of Dr. Hubbell, and those in attendance were highly edified by a paper on "The Early Diagnosis and Treatment of Glaucoma," by Dr. Eugene Smith of Detroit, Mich.

OBITUARY.—Death has indeed been busy in our ranks lately. The latest victim of the grim messenger has been Dr. Hans Viehweger, of Wimpole Street, London, who died recently at Breslau, at the

early age of 35 years. On the Continent, we have to record the loss of Dr. Theodor von Schröder, director of the St. Petersburg Eye Hospital. Arteriosclerosis and infarction led to his untimely decease at the age of 51 years. R.I.P.—*The Ophthalmoscope*.

PROF. CARL H. EIGENMANN of the University of Indiana, in a recent number of the U. S. Fish Commission Bulletin, reports a series of collections in the fresh waters of Western Cuba, the chief object of which is to secure material for a study of the eyes of the blind fishes, *Stygicola* and *Lucifuga*. Of the first 43 specimens were secured and of *Lucifuga subterranea* 76 specimens. A female of this species contained four young with well-developed eyes. An abstract of the work of Eigenmann on the eyes of the blind vertebrata will appear in the *Annals of Ophthalmology*.

UNIONISM and medicine have many relations, and one of the unfortunate ones has just come to view in the complaints of the motormen of an elevated road of New York City against the rules of the company ordered to protect the safety of the public from results of defective eyesight on the part of the men. It is not an assuring thing to learn that the men are so indifferent to the public welfare as to oppose the examinations demanded of their eyes. The inference is plain that they are afflicted by a blindness to ethics, if not to signals, which needs resolute therapeutics on the part both of company and of public.—*American Medicine*.

POSSIBLE CLOSURE OF THE NEW YORK EYE AND EAR INFIRMARY.—At a meeting of the board of directors of the New York Eye and Ear Infirmary, held February 10, a resolution was presented for consideration which suggests the closing of the hospital. The resolution fixes May 1 as the date for closing, this action being forced on the directors by an increasing indebtedness. The expenses of the institution, it is stated, exceeded the receipts for the past year by \$22,000, and the deficit of nearly \$2,000 a month continues. The Infirmary has been in existence for eighty-four years.—*New York Medical Record*.

SEA BATHING IN EYE DISEASES.—Roshtchevski advocates sea bathing and climatic treatment in some affections of the eye, especially in the scrofulous diseases of the conjunctiva and in trachoma, in which the sea water is not only subjectively beneficial, but also acts as a mild antiseptic and removes secretions. He advocates the

establishment of a system of climatic treatment for eye diseases of this sort. The irritation which is at first felt in the eyes after bathing in salt water is transient and insignificant.—*New York Medical Journal*.

OPHTHALMIC DISEASE IN NEW YORK.—Trachoma and other eye diseases have again appeared to such an alarming extent that Health Commissioner Darlington has asked the Board of Estimate for an appropriation of \$30,000 for the immediate establishment in one of the hospitals of several wards devoted exclusively to these diseases, the employment of a staff of oculists, special nurses, orderlies and attendants. The board at once authorized the expenditure. The health department is also planning a special hospital on the lower East Side for the treatment of trachoma.—*American Medicine*.

OPPOSE OPTOMETRY BILL.—The Buffalo Academy of Medicine has been informed that a number of physicians have signed postal cards circulated by opticians favoring the passage of their bill now before the legislature as Senate Bill No. 378. A closer examination of this bill shows that it is a permission to practice medicine. It has been condemned by resolutions of the New York State Medical Society, by the Buffalo Academy of Medicine, and by the medical press. The Buffalo Academy of Medicine has recommended that the medical profession write personal letters to their representatives at Albany in opposition to this bill.—*Journal of the American Medical Association*.

OBITARY.—Dr. William Rankin, Jr., for over thirty years a practicing physician of Newark, N. J., died at his home in that city on February 26, aged 56 years. He was a graduate of Rutgers College in 1868, and of the College of Physicians and Surgeons in this city in the class of 1871, and also studied in Vienna. He was for years on the visiting staff of the Newark Charitable Eye and Ear Infirmary, and secretary of the old Newark Library Association, and a member of the American Ophthalmological Association, the American Otological Association, the New Jersey State Medical Society, and the Essex District Medical Society. A son and two daughters survive him.—*New York Medical Record*.

THE papers read before the Section on Ophthalmology of the American Medical Association, at the annual session, New Orleans, May, 1903, on "The Relation of the Cervical Sympathetic to the

Eye" by Drs. G. E. de Schweinitz, William H. Wilder, James Moores Ball and John E. Weeks, have been published in book form by the authors. Each of these essays may well be read by every ophthalmologist, giving as they do a résumé of practically all that is known of the bearing of the sympathetic on the eye. The paper of Dr. de Schweinitz especially shows an immense amount of labor in presenting "The Physiology of the Sympathetic in Relation to the Eye," as it does most thoroughly.

HOSPITAL FOR TRACHOMA. —In its fight to stamp out trachoma in the public schools the New York Board of Health has decided to establish a hospital for the exclusive treatment of sufferers from this eye disease. A large house has been remodeled for this purpose and will be opened so soon as an appropriation to cover the cost of equipment and the salaries of the staff can be secured. It is estimated that there are more than 100,000 sufferers from trachoma in the city, and that the great majority of them are public school students. In the schools inspected last week, 19 per cent. of the children were affected. At present all trachoma patients are being treated at the old Gouverneur Hospital by a staff of physicians and nurses provided by the Board of Health. In the last week the number of patients has been between 400 and 500 a day.—*Jour. A. M. A.*

FINANCIAL AID FOR EYE AND EAR HOSPITALS.—Both the Manhattan Eye and Ear Hospital and the New York Eye and Ear Infirmary have been very much embarrassed financially and there was much anxiety as to whether they would be able to continue their work, at least in its entirety, but at a recent meeting of the board of managers of the New York Eye and Ear Infirmary the trustees subscribed personally and succeeded in raising about \$26,000 of the \$30,000 required for the coming year. The officials of the Manhattan Eye and Ear Hospital declared at their meeting on March 18 that there was no possibility of their closing any of their wards, as they had an annual income of \$50,000, but that they still needed an endowment fund of \$250,000—*Journal of the American Medical Association.*

REPORTED DEATH OF DR. A. DARIER.—We are glad to say that Dr. Darier, our distinguished French correspondent, is at the present moment in the best of health, and engaged with the utmost vigor upon his therapeutic work. We hasten to make this announcement on account of a curious error into which the *Lancet* of December

26, 1903, recently fell. In the course of an admirable review of the "Annus Medicus, 1903," discussing the action of adrenalin on the eye, the following passage occurs: "Thus Dr. A. Yvert, Dr. Wesely, Dr. Konigstein, Dr. Marquess, Dr. A. Darier, whose death has so recently occurred, and many others, speak in high terms of its value when applied to the congested conjunctiva." Errors of this kind must occur in the best regulated families, and we note the above only with a view of assuaging the grief of Dr. Darier's numerous English acquaintances.—*The Ophthalmoscope*.

DR. WILLIAM FREDERICK HOLCOMBE, for many years one of the most distinguished physicians in New York and a noted specialist on diseases of the eye and ear, died suddenly last week in the Presbyterian Hospital, after a brief illness, from a general breakdown due to old age. Dr. Holcombe lived for years at No. 54 East Twenty-fifth Street, and treated General Grant during his last illness. He also treated Daniel Webster and Charles Sumner. Some ten years ago he became deaf, and through this affliction was compelled to give up his practice, as well as his professorship on diseases of the eye and ear in the New York University Medical College, the New York Ophthalmic College and Hospital, and the New York Medical College for Women. He was born in Stirling, Mass., April 2, 1827. Dr. Holcombe was one of the founders of the New York Genealogical and Biographical Society and was a member of the International Medical Association.—*Medical News*.

EXHIBITION.—The committee of the Tenth International Congress of Ophthalmology has charged Prof. Dr. A. Siegrist, Berne, director of the ophthalmologic clinic of the University, Berne, with the preparations for the appropriate exhibition of all scientific apparatus, instruments, and the various appliances for instruction, which will be sent to the congress. Professor Siegrist requests all colleagues, as well as all scientific, optical and mechanical firms who wish to make exhibits at the International Ophthalmological Congress, to apply to him before July 1, 1904, giving an exact statement of the object to be exhibited, of the space demanded, and of the kind and strength of electric force which may be required. Objects, to be announced later, can only be accepted so far as the space will allow. Hotel accommodations can be secured by applying before September 1 to Dr. F. Stocker, president of the local committee, at Lucerne. Rooms can be engaged at five francs a day for each person.

THE Chicago Board of Education will take radical action to safeguard the health of the 270,000 children attending the public schools. Resolutions calling for the establishment of a thorough system of medical examination have been introduced by Dr. Henry Hartung of the board. It will be the duty of every teacher to report any unsanitary condition in the schools. Principals and teachers must report for medical examination any pupil they believe to be physically defective, deformed or afflicted with a functional disorder. The examination shall be made by the school medical inspector in the office of the principal under the latter's supervision. These examinations are limited as follows:

Eyes—Diseases of the conjunctiva and lachrymal apparatus muscles of the eyeballs, visual acuity, hypermetropia, myopia, astigmatism.

Ears—External ear, auditory meatus, drum membrane, hearing, acute or chronic diseases of middle ear.—*Chicago Medical Recorder*.

BANQUET IN HONOR OF DR. D. B. ST. JOHN ROOSA OF NEW YORK.—More than 300 physicians, among whom were eminent practitioners and men connected with institutions of medical learning from almost every state east of the Mississippi and some from beyond, attended a dinner given at Delmonico's in February to honor Dr. D. B. St. John Roosa and to commemorate the twenty-first anniversary of the inauguration in this country of post-graduate medical instruction. Dr. St. John Roosa is president of the Post-Graduate Hospital in this city and a pioneer worker on behalf of the form of practical education it affords the medical profession.

Before the speechmaking began a large loving cup of silver was presented to the guest of the evening on behalf of the faculty of the Post-Graduate Medical School connected with the hospital. The presentation speech was made by the Rev. Dr. Marvin R. Vincent.

Dr. William Osler of the Johns Hopkins University, who attended Senator Hanna in his last illness, was toastmaster of the evening. Dr. St. John Roosa sat on his right, and on his left was William Potter of Philadelphia, a trustee of Jefferson College. Among the others seated at the guest table were Dr. Clarence J. Blake of Boston, Cornelius N. Bliss, Dr. William T. Bull, Dr. Buller, Dr. William S. Halsted of Baltimore, William Dean Howells, Dr. E. G. Janeway, Dr. George B. Johnston, Dr. W. W. Keen of Philadelphia, Dr. Howard Kelly, Dr. William Mayo of Rochester, Minn., Dr. John H. Musser of Philadelphia, Dr. William M. Polk, Dr. Maurice H. Richardson of Boston, Dr. A. H. Smith, Edmund Clarence Sted-

man, Dean Van Ahringe of Columbia University, Dr. R. F. Weir, Dr. W. H. Welch of Baltimore, and J. A. Wyeth.

A NEW method in medical congresses, and one which seems certain to revolutionize the present plan, has been inaugurated by the International Congress of Ophthalmology. At present, as is well known, the programs of large medical societies are overloaded, and the reading of the papers wastes the time of the members, because the articles soon appear in the journals and can be read with more understanding than listened to. The most important criticism of the usual custom is that the time for discussion is lost in that used for the reading of papers. To avoid these errors the ophthalmologists have adopted the following plan: The papers must be forwarded to the committee sufficiently in advance to be grouped according to their contents, and immediately printed. They will form the first part of the printed report of the congress, and will be sent to each member, together with his admission ticket, at least two weeks before the time appointed for the opening of the congress. In this way each member will know the subjects to be considered, and will be able to prepare himself for serious discussion. The reading of the papers is thus dispensed with. The authors will be called on by the president to make known in a few words the conclusions at which they have arrived, after which the discussion will at once begin. The opinions of men who have not the time to write and publish their experiences and opinions may thus be heard. The discussions will be printed and will form the second part of the official report, which will be sent to each member after the close of the congress. The plan should receive the serious consideration of the officers and members of our national and state medical societies.

—*American Medicine.*

AN ANCIENT MEDICAL CODE.—As many readers are doubtless aware, French savants made a very valuable discovery at Susa last year, namely, a monument containing engraved on it the laws of King Hammurabi, who ruled over Babylon and Mesopotamia as far as the Mediterranean coast.

This is the oldest code of laws in the world, dating as it does from the third millennium B. C. That it did much to mold jurisprudence through that great empire there is no doubt, influencing probably Hebrew tradition to a great extent. Even 2,000 years later the code of the great king was made a text-book in the schools of Babylonia.

A few months after the discovery, the French government copied, transcribed and translated the code, which has been published and edited by distinguished scholars. It is a matter of great regret that many of the columns of the code have had the writing erased, the stone having been repolished; this is believed to have been done by some later conqueror, who had, perhaps, intended to set up some inscriptions of his own in their place. Even in what remains, however, there are some interesting references to medical matters, which I venture to quote from the code.

"If a man has struck a man in a quarrel, and has caused him a wound, that man shall swear, 'I do not strike him knowing,' and shall answer for the doctor."

"If a doctor has treated a gentleman for a severe wound with a bronze lancet, and has cured the man; or has opened an abscess of the eye for a gentleman with a bronze lancet, and has cured the eye of the gentleman, he shall take ten shekels of silver.

"For a poor man, five shekels of silver.

"If he be a gentleman's servant, the master of the servant shall give two shekels of silver to the doctor."

"If the doctor has treated a gentleman for a severe wound with a lancet of bronze, and has caused the gentleman to die; or has opened an abscess of the eye for a gentleman with the bronze lancet, and has caused the loss of the gentleman's eye, one shall cut off his hands.

"If the slave of a poor man, he shall render slave for slave, if he dies.

"If the eye is lost, he shall pay money, half the price of the slave."

"If a doctor has cured the shattered limb of a gentleman, or has cured the diseased bowel, the patient shall give five shekels of silver to the doctor.

"If the son of a poor man, three shekels of silver.

"If a gentleman's servant, the master of the servant shall give two shekels of silver to the doctor."—G. H. Hogg, in the *Australian Medical Gazette*.

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NEW SERIES

Original Articles.

TWO CASES OF RARE NERVOUS LESIONS OF THE EYE.

OSCAR WILKINSON, A.M., M.D.

WASHINGTON, D. C.

I. TOBACCO MOTOR OCULI PARALYSIS.

II. NERVOUS CONNECTION BETWEEN THE MUSCLES OF MASTICATION AND THE LEVATOR-PALPEBRARUM.

CASE I.—Mr. J. E., German descent, age 38, apparently in perfect health, consulted me in 1898 on account of a very annoying diplopia of six months' duration.

The following history was obtained: About six months ago he noticed double vision at times, which gradually became constant. He was also gradually losing the ability to open his right eye. No history of syphilis was obtainable, and no manifestation of it was present, either in the way of enlarged glands or associated headache. His wife and two children were free from any syphilitic taint. There was no history of rheumatism or any constitutional disorder. Had once been a moderate drinker, but had drunk nothing, not even beer, for the past two years.

He was a dealer in paints and a carriage painter by trade, but did not do general painting, nor did he handle paints except in sealed cans.

He had been treated by a local oculist of some repute, who had given him iodid of potash and hyd. inunctions, increasing the KI until he was taking 60 grs. t. i. d. This had no effect except to cause some stomach irritation. He went to the city and was operated on for ptosis, which was in a measure successful. After again taking the mixed treatment without success he was given hypodermic injections of strychnia, with a similar result.

On examination I found paralysis of all the branches of the motor oculi communis except the pupillary branch; the accommodation and pupillary reaction being intact. O. D. V. 6/6 with 0.75

Hm. with normal fundus except slight pallor of temporal side of the disc. O. S. V. 6/6 with 0.75 Hm. fundus normal except a slight pallor of temporal half of the disc, but not so marked as in the right. I placed him on iodid of potash and hyd. bin. and increased the dose of iodid until he was taking two drams three times a day, i. e., 360 grs. per day. This continued until he had taken KI for 4 weeks. I then changed his treatment to strychnia hypodermically and galvanism locally. This also proved a failure; so in my extremity I examined him more carefully. I found all the reflexes perfectly normal. His fields were normal, as shown by perimeter, but on examining with the small 1 mm. red and green discs I discovered in the right eye an absolutely central scotoma of about 3 mm. horizontal diameter and 2 mm. vertical, situated between the macula and the disc. I found a relative scotoma of about the same size and situation in the left eye. On inquiry I found that he had smoked for a number of years, which was increased for the last two years since he had left off drinking, and that he had smoked an unusual amount since his eye became affected. He was ordered to leave off smoking entirely, and strychnia and galvanism were continued, but not so actively. After about ten days improvement was noticed, which progressed uninterruptedly with the exception of a decided relapse when almost well, following a two days' smoking spree.

I have purposely related the history of this case in detail, as I am aware that paralysis of ocular muscles due to tobacco is exceedingly rare, and even doubted by some of our best writers.

The fact that he was a carriage painter caused me to suspect lead paralysis, but the absence of any lead colic, drop wrist, or other symptoms of lead poisoning caused me to abandon this idea, especially as he obtained no relief after a two months' stay in the city away from his business.

We all suspected syphilis, but the therapeutic test failed to show its presence, and the absence of any other syphilitic manifestation excluded it. That it was not due to any spinal or cerebral disease is evident from the fact that he is still living and well at present, five years since.

CASE 2.—Mr. C. C. T., age 30, lawyer, consulted me in regard to a peculiar movement of the right upper lid, which he said had existed all his life.

On examination I found the upper lid of the right eye would be lifted high each time he opened his mouth, producing a most horrifying appearance when chewing anything. The lower border of the lid would be raised from 2 to 3 mm. above the upper edge of

the cornea when the mouth was opened wide, while the lid of the left eye would remain in its normal position.

He could open and close both eyes together in a perfectly normal manner, excepting that when he made an extra effort to open both eyes the right one seemed to open somewhat wider than the left.

His vision was normal in each eye and the associate movements of the eyes were normal.

1404 L Street N. W.

SUBCONJUNCTIVAL DERMOLIPOMATA.

RICHARD H. JOHNSTON, M.D.

Assistant Surgeon and Pathologist to the Presbyterian Eye, Ear and Throat Hospital; Demonstrator of Laryngology in the University of Maryland School of Medicine.

BALTIMORE.

Dermo-lipomata are tumors partaking of the nature of dermoid tumors on the one hand and lipomata on the other. They are characterized by the presence in their structure of certain elements found in the normal skin, such as papillæ, epithelial inshoots, hair follicles, sebaceous glands and blood vessels. They partake of the nature of lipomata in that they contain a certain amount of fatty tissue. Some authorities, Bögel and Nobbes, claim that pure lipomata of the conjunctiva do not exist—that a careful histologic examination of such tumors will always reveal dermoid elements. On the other hand, Rogman has described two cases where the most careful examination revealed only fatty tissue. Other authors have reported pure lipomata, so it must be assumed that such tumors do exist. They are, however, very rare and most of the cases reported are dermo-lipomata.

Etiology.—Dermo-lipomata are always congenital. They may not be detected at birth since they usually occur on the upper and outer part of the eyeball between the external and superior recti muscles where they may remain hidden by the upper lid. They occur oftenest in women. When found in advanced age they have increased in size. The small tumor gives no trouble.

Pathogenesis.—Bögel and Nobbes claim that the tumors are dermoid containing more or less fat and that they are formed like dermoids of the limbus. It is certain that subconjunctival lipomata do not arise from the fatty tissue of the orbit. The transformation of orbital adipose tissue into lipoma would cause an increase in the fatty mass of the region—there would result a retrobulbar lipoma and exophthalmos. So it is more than probable that these tumors

are congenital. The usual location is the superior fornix. Panas saw one at the internal part of the inferior cul-de-sac.

Symptoms.—The size varies from a pea to a small almond. The tumor is single. The color is generally yellow, sometimes a little red. It is not rare to find pearly white plaques which are the remains of the epidermis. In the mass of the neoplasm are found epidermic elements, as hair follicles, sebaceous and sweat glands. It is rare to find on the surface of dermo-lipomata hairs visible to the naked eye, as in corneal dermoid. The epidermic elements are usually rudimentary. The growths are seldom noticed at birth on account of their subpalpebral location, but attention may be called to them from the fact that they are sometimes accompanied by some congenital anomaly, as coloboma, cataract, etc. In pure lipomata the conjunctiva is not adherent to the growth, but slips over it, so that by cutting through the mucous membrane the tumor can be removed *in toto*. In dermo-lipomata the conjunctiva is intimately adherent to the growth, so that in removal the conjunctive must be removed with the tumor.

The following description of a dermo-lipoma which occurred in my practice will illustrate the clinical history and pathologic findings. The patient was a woman 56 years old who, two years before she consulted me, had noticed a small swelling at the inner part of the inferior fornix. At first it gave no trouble, but as it grew larger the eye became red and irritable. Becoming alarmed at the steady growth, she decided to consult a specialist. When I saw her in August, 1902, there was a large tumor apparently springing from the inner part of the inferior fornix of the left eye. The growth was cone shaped, with base below and apex above, lying on the cornea. The color was whitish-gray, the consistency very hard, the conjunctiva adherent. There was no ulceration. Vision was normal. The tumor was removed under cocain and the wound covered by stretching normal conjunctiva. The wound healed nicely. After hardening the mass in alcohol sections were cut and stained with hematoxylin and eosin and Van Gieson's stain. The epithelium covering the growth consisted of six or seven layers in some places, fifteen or twenty in others. The general formation of the cells was squamous, ovoid and cylindrical from without inward. Dipping down into the substance of the mass were hair follicles about twenty in number, with an inner layer of cylindrical epithelium. At one point on the surface was a gland having the appearance of a sweat gland; it was lined with cuboidal epithelium, with nuclei well defined in cross section. Just below the epithelial

layer were mononuclear and polynuclear leucocytes in abundance. The papillæ were broad and prominent. The connective tissue consisted of thick, wavy bundles, which at certain points crossed each other. Blood vessels were rather large and numerous and some of them had walls much thickened. In the connective tissue were several hair follicles cut across. Sebaceous glands were evident, entering some of the superficial follicles. At one point there was a long gland showing the characters of a sweat gland, and in the immediate vicinity a sebaceous gland. The fatty tissue began about the center of the tumor. Adjoining the fat were three small areas of unstriated muscle tissue. The base of the growth was made up almost entirely of fatty tissue. In the meshes of this tissue was an extravasation of blood from the operation. The tumor was undoubtedly a congenital dermo-lipoma which, on account of its small size, had remained dormant for years. At 54 years of age it began to grow and caused trouble.

819 Park Avenue.

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IRIDECTOMY FOR GLAUCOMA AND ITS IMMEDIATE
AFTER-TREATMENT.

ALBERT B. HALE, M.D.

CHICAGO.

I have not performed so very many iridectomies for glaucoma, but in every case I am puzzled to know what are the practical indications for treatment until the wound has healed and the patient is, surgically speaking, well.

No one will deny the difficulty of the technic of the operation itself, since there are so many circumstances against us; the eyeball is in a pathologic state, and we can not tell until the incision is made what may be found within it. Tension, an unhealthy iris, tendency to hemorrhage, are all to be expected, and when the anterior chamber is very shallow the difficulties in the way of surgical perfection are unusually threatening. But granted that in any given case the iridectomy has been successfully performed, there yet remains indications for the immediate subsequent treatment. Of course, antiseptics, a bandage (with same pressure), and quiet and proper hygiene are necessary; but I refer chiefly to the care of the two conditions most conspicuously before us, the glaucoma from which the eye is suffering and the iridectomy.

The glaucoma has been treated by eserine and it is taken for granted that up to the time of the operation the eye is under the influence of that drug. In an ordinary iridectomy, perhaps at once, surely after the corneal wound is closed, we feel tempted to use atropine to overcome the tendency to a reactive iritis, and in a glaucomatous eye the iris is more inclined to inflammation than in a healthy eye. What shall we do—use eserine, or atropine, or neither?

Czermak, in his *augenärztliche operationen*, strongly advises against any drug, as eserine may temporarily obscure symptoms that show that the operation was not a complete success. I would add that eserine may induce an iritis hard to overcome. One of the most recent text-books says that eserine is indicated both before and after the operation. Noyes, whose experience certainly was large, but who wrote twenty years ago, says that he always uses atropine after the iridectomy, to try to prevent inflammation. Most text-books say nothing about the details of the after-treatment, apparently taking it for granted that the operator knows all about it.

The problem is a complicated one, and probably each individual solves it according to his own experience, but it must be clearly understood before a conviction is obtained. We have an eye suf-

fering from increased tension. To relieve this tension we remove a part of the iris, trying particularly to attack its root (the ciliary insertion) in order to establish a more direct connection between posterior and anterior chambers, and thereby to encourage a better drainage, according to the prevailing theory. Now this is or is not accomplished by the operation, for the previously used eserine has temporarily reduced tension and withdrawn the iris from the filtration angle and the iridectomy makes it permanent. If the iridectomy is successful there is no need to continue the eserine, because the iris may thereby be irritated or even inflamed. On the other hand, if the iridectomy is not successful, not only is there the danger of an induced iritis, but the condition of tension and retarded drainage will only for the time be overcome by the drug action, and the essential disease will go on till the influence on the eyeball is beyond control, and the possibility of checking it by a second operation will be lost. My own conclusion is, therefore, that it is best to use no eserine until the wound is healed.

Considering the operation apart from the glaucoma, we might be inclined to use atropine at once, to check whatever tendency toward inflammation the operation might carry with it. But here, too, there is danger, since the iridectomy may not be successful in restoring filtration and reducing tension; consequently the drug might precipitate in the disease a fresh attack that otherwise would be escaped. I can not, therefore, convince myself that atropine is in the circumstances safe.

Such arguments, until I have further experience, teaches me that no drug should be used until the corneal wound has healed and the eye is no longer to be considered as purely a surgical matter. After that meet with drugs such conditions as may be present and indicated, but until that, let the eye alone.

PAPILLOMA OF THE CONJUNCTIVA.

RICHARD H. JOHNSTON, M.D.

Assistant Surgeon and Pathologist to the Presbyterian Eye, Ear and Throat Hospital; Demonstrator of Laryngology in the University of Maryland School of Medicine.

BALTIMORE.

In an article on "Papillomata of the Conjunctiva and Cornea," which appeared in the *Annals of Ophthalmology* for July, 1903, I called attention to the rarity of the recorded cases in medical literature and ventured the assertion that if all tumors of the eye were subjected to a careful histologic examination, the number of this benign neoplasm would be materially increased. At that time an

exhaustive search of the literature was rewarded by the finding of thirty (30) well-authenticated papillomata of the conjunctiva and cornea and five (5) doubtful cases. Since then a few other cases have been reported, notably one by Coover and another by Shumway. Recently the second papilloma in two years has appeared at the Presbyterian Hospital, and since such tumors are interesting and important because of their similarity in some respects to malignant growths, I take the liberty of reporting it. For the clinical history of the case I am indebted to Dr. H. Harlan, who removed the growth and referred it to me for microscopic examination. The patient was a white male, 61 years old, who came to the hospital March 8, 1904. He stated that his left eye had been operated upon nine (9) months before for an external pterygium, which had been growing eighteen (18) months. A short time after this operation he noticed that a small tumor had appeared on the site occupied previously by the pterygium. This tumor gradually enlarged, and, at the time of his entrance into the hospital, extended from its involvement of the cornea three (3) or four (4) mm. externally to the outer canthus. The entire growth was about ten (10) mm. long and six (6) mm. broad. In appearance it was yellow and hard to the touch. There was no pain and no ulceration could be seen. The motion of the eyeball outward was somewhat restricted, and the patient complained that something obstructed his field of vision when the left eye was turned out. From the general appearance of the growth and its rapid increase in size it was thought to be a sarcoma. On the 10th of March, under cocain anesthesia, the neoplasm was dissected up from the cornea and removed *in toto*. Conjunctiva was drawn over the wound, which healed promptly. After removal the tumor presented a lobulated surface, and this appearance was rendered even more prominent by immersion in alcohol. As an early diagnosis was desired, a small piece of the mass was hardened in formalin and absolute alcohol. Sections were cut twenty-four (24) hours later and stained with hematoxylin and eosin. With the low power the tumor was seen to be made up of proliferated epithelium and connective tissue. The epithelium terminated definitely at the connective tissue base. With the high power the epithelial proliferation consisted of outer squamous cells with very faint or no nuclei. In the middle of the proliferation the cells were ovoid or polygonal, with round nuclei well stained, while next to the connective tissue framework the cells had assumed a cylindrical shape, with deeply staining oval nuclei. The connective tissue fibers were thick and wavy and at places crossed each

other. The papillae running up into the epithelium showed at some points thick, cone-shaped processes, while at others long, narrow processes of connective tissue extended almost to the outer epithelial surface. At several places were dense leucocyte infiltrations. The blood vessels of the connective tissue were large and numerous. The base of the tumor was infiltrated with blood from the operation. Just external to the outer surface of the tumor were collections of epithelial cells surrounding narrow, connective tissue processes. At no place was there any tendency of the epithelium to infiltrate the surrounding tissues or any cutting off of the same. There was no ulceration. The tumor was a typical benign papilloma involving the conjunctiva and a small portion of the cornea.

819 Park Avenue.

A CASE OF METHYL-ALCOHOL AMBLYOPIA.*

WILLIAM H. WILDER, M.D.

Assistant Professor of Ophthalmology, Rush Medical College; Professor of Ophthalmology Chicago Policlinic; Surgeon Illinois Charitable Eye and Ear Infirmary.

CHICAGO.

I desire to place on record the following case, for it illustrates well, as others have done, the danger of ingestion of wood alcohol, and the rapid and disastrous effect of this substance upon the optic nerves:

James H., aged 33 years, was a periodic drinker, and would occasionally go on a spree. At one time he had been under treatment for the drink habit. He was an industrious and skillful man at his work, which was that of decorating china, but he had to be carefully watched by his friends lest his mania for drink should lead him astray. He had been drinking some December 19 and 20, but went to his work as usual on the morning of December 21, but he says he did not feel very well. Evidently having a desire to drink, he began to take some of the methyl alcohol, which he used in his work in some way for drying colors on china. He was not particular about diluting it, and between 8 o'clock and noon he says he drank at least a pint. He experienced none of the sensations of intoxication, such as he was familiar with from drinking whiskey, but he did not feel well. It was not until 12 o'clock that he began to suffer from nausea, and he discontinued drinking the methyl alcohol. At that time he noticed also that his sight was getting dim, as he expressed it, the day seemed to be waning, although it was midday. He went home, and at 5 o'clock he vomited. There

* Read at the meeting of the Chicago Ophthalmological Society, May 10, 1904.

was slight vertigo and some headache, although this was not pronounced. At 6 o'clock he was seen by a physician, who gave him some medicine hypodermically. By this time his vision had failed so that he was barely able to count fingers. He slept well that night, but when he awoke the next morning he could not distinguish light and for fourteen days he remained completely blind. Four days after his blindness began an oculist saw him once, and left directions as to medicine. At the end of fourteen days of total blindness he began to see a little, and recovered sufficient vision to be able to see moving objects in the temporal field of the left eye. This improvement continued, so that at the end of two weeks he was able to go around alone, and could even see large print close to the left eye. The vision of the right eye did not improve correspondingly, for he was only able to distinguish hand movements with that eye.

I first saw him Jan. 27, 1904, at the Illinois Eye and Ear Infirmary, which institution he entered thirty-seven days after the trouble began. At that time R. V.=fingers at 1 ft.; L. V.=fingers at 3 ft. The right pupil was dilated to 8 mm., and did not respond to light or accommodation. The optic disc was pale and showed a large physiologic excavation. Vessels normal. The left pupil was dilated, but not as much as right, about 5 or 6 mm., and showed faint response to light and accommodation. Optic disc pale and with marked physiologic excavation. Vessels normal.

Tension normal in each eye. Knee jerks normal; no ataxia or other symptoms of tabes or other spinal trouble. He was given large doses of iodids for ten days with no effect. He was then given hypodermatic injections of strychnia sulphate in the temple daily, alternately on each side, beginning with a dosage of 1/60 grain and increasing until he received 1/10 grain a day.

The sight steadily failed. March 8, 1904, he left the infirmary to go to the Home for the Blind at Jacksonville. R. V.=0. There was no perception of bright light in any field. The pupil was dilated to 8 mm.

L. V., uncertain counting of fingers at 1 foot in temporal field. Faint perception of light in all fields of left eye. The ophthalmoscopic examination showed very pale optic discs with distinct lamina cribrosa and marked sloping excavation. The retinal arteries were slightly narrowed; the veins seemed to be normal. In the left eye there seemed to be a narrow strip of optic disc on the nasal side not so completely atrophied as the rest. Otherwise the fundus of each eye was normal.

A CASE OF TUBERCULAR IRITIS TREATED BY THE INJECTION OF AIR INTO THE ANTERIOR CHAMBER.*

CLARENCE W. HEATH, M.D.

CHICAGO.

Various methods have been suggested of late for the treatment of tubercular iritis. Notable among these are:

The treatment by *tuberculin*,¹ as reported by Handmann.

The introduction of *iodoform* into the anterior chamber, reported by Weill;² also by Haab.³

The introduction of *air* into the anterior chamber, as reported by Koster⁴ and Felix.⁵ Felix reporting two cases and Koster four, thus treated with favorable results. This latter method is evidently based upon the theory that air, coming in contact with tubercular lesions of the peritoneum, cures, or at least stays, the process. The opinion of the medical profession upon this point is divided.

A case possessing considerable interest was recently under my observation, and I take this opportunity to present a report of the same to this society.

I first saw the patient, Mr. Arthur A., age 20, the first of last November—six months ago. He complained of failing vision and something growing in his left eye. The patient looked quite the picture of one who is in the advanced stage of pulmonary tuberculosis, and gave a history of having had pneumonia sixteen months before. Following this, he had a severe cough, associated with night sweats. He was sent out to Colorado for his health, and worked there on a fruit ranch. He received no benefit, however, and after remaining nine months, he returned to his home in this city.

Shortly after his return—some ten weeks before he came under observation—the patient noticed that the vision in his left eye was failing, and that the eye looked red at times, but there was no pain.

Upon closer investigation he discovered two small growths upon the lower portion of the left iris.

* Read before the Chicago Ophthalmological Society, May 10, 1904.

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4. Klinische Monatsblätter für Augenheilkunde, April, 1902.

5. Zeitschrift für Augenheilkunde, December, 1902.

CASE HISTORY.

Upon examining the eye, I found two well-marked tubercles in the iris. One was directly under the pupil, near the corneal edge. This was semi-spherical, with roughened surface, growing out from the iris into the anterior chamber. It was 2 mm. in diameter, and evenly grayish-pink in color. The other was much more deeply located in the stroma of the iris, and closer to the lower ciliary margin. It was semi-circular in shape, the straight side occupying the margin of the iris. This was brownish-gray in color.

The vision in the unaffected eye was emmetropic, while in the left eye it was 6/50.

Under homatropin, the whole lower portion of the iris dilated but little, while above there was free dilatation, revealing synechial deposits.

The lower area, unaffected by the mydriatic, was out of all proportion to the apparently involved district, showing that the deeper structures were also involved. It was, unfortunately, impossible to get a view of the fundus, on account of the deposits of exudate, both on the lens capsule and the posterior wall of the cornea.

The patient had phthisis, well advanced, a tubercular family history, and the examination of the sputum showed *numerous* tubercle bacilli. There was no specific history. The diagnosis of tubercular iritis was made, and by the courtesy of this society, the case was shown at the November meeting.

The very probable involvement of the deeper structures of the eye, and the general condition of the patient, militated against operative procedure. The patient was opposed to the removal of a portion of the tubercle for examination and implantation, but consented to have Koster's method of treatment tried, namely, the injection of air into the anterior chamber. I was rather curious to try the operation, and did so first on the 12th of last November, the patient consenting to the operation, which was devoid of pain, after being frankly told that there was only a possibility that the injections would affect the growths.

THE TECHNIC OF THE OPERATION.

A hypodermic syringe was used, the piston of which was first pressed home to exclude the air from the barrel, and then withdrawn half way, while cotton was held over the needle point to filter the air as it entered. The needle was then introduced into the anterior chamber, through the external limb of the cornea, in a slanting position, so as to go through a considerable thickness of

the same, thereby making a more secure closure after the needle was removed. The handle of the hypodermic was lowered and about three-fourths of the aqueous withdrawn. The liquid going to the lower end of the barrel, left the filtered air above, next to the needle. The piston was now pressed gently and the air filled the space in the anterior chamber, the normal tension was restored, and the needle withdrawn.

The following day there was very little reaction, and the air introduced the day before was two-thirds absorbed, and on the following day only a small bubble remained.

The operation was repeated at weekly intervals until four injections had been made, but with negative results. The growths continued to increase in size uninterruptedly.

I later made arrangements to enucleate the eye, but when it came time for the operation the patient was failing so rapidly I refrained from doing so.

The last time I saw the patient—early in February last—the tubercles had both grown materially, the more deeply set one having doubled in size, while the other had increased so that it crowded upon the pupillary area, being about ten times the size it was at the time of the first examination.

Death resulted a short time after this from tuberculosis (pulmonary and peritoneal), and as I was unable to secure the eye, I have no sections to present.

In conclusion, the writer wishes to express the opinion that in cases of tubercular iritis, in which the lesion is well established, the injection of air into the anterior chamber will not effect a cure or stay the process.

100 State Street.

REPORT OF A CASE OF CONGENITAL EXOPHTHALMOS PRODUCED BY ORBITAL HEMORRHAGE FOL- LOWED BY METASTATIC CHOROIDITIS.*

C. A. VEASEY, M.D.

Ophthalmic Surgeon to the Methodist Episcopal Hospital; Assistant Attending
Ophthalmic Surgeon and Chief of Clinic to the Jefferson
Medical College Hospital, etc.

PHILADELPHIA.

(Illustrated.)

On the 28th of March, 1904, I was requested by Dr. James Rea Crawford of this city to examine, in consultation with him, a young infant forty-eight hours of age, with the following history:

* Read in the section on Ophthalmology of the College of Physicians of Philadelphia at the meeting of April 19, 1904.

The infant, a boy, was born without difficulty, the labor being exceedingly short. No instruments were employed nor did anything occur during the labor that might have produced an injury of any kind. During the application of vaselin to the child's skin the nurse observed that the left eye appeared to be considerably larger than the right, and directed the physician's attention to it at his next visit, about eleven hours after birth. At this time there was considerable proptosis, but there was some movement of the eyeball, and it could be completely covered by the closed lids. The proptosis, however, continued to increase, so that at the end of the second day I was asked to see the child.

At the time of my examination the exophthalmos was so pronounced that a space 5 mm. wide existed between the lid margins when the child was sleeping, the portion of the cornea thus un-



covered appearing dry and stippled. The eyeball was absolutely fixed, there being no movement in any direction, and the proptosis was directly forward. The eyelids and the ocular conjunctiva were not chemotic, the pupil was normal and the proptosis could not be reduced by pressure. It was impossible to obtain any satisfactory ophthalmoscopic examination because of the corneal condition, but the nerve could be indistinctly observed and did not seem to be swollen, nor could any hemorrhages be detected. The other eye was perfectly normal.

An opinion was expressed that the condition was due either to a very large orbital hemorrhage or to a tumor situated within the muscle cone, and that it was impossible to distinguish which of these two was the cause until further developments in the case.

On the following day the patient began to have slight hemorrhages from the conjunctivæ and from the mucous membrane of

the mouth, according to the nurse losing as much as a teaspoonful from the latter membrane. The next day (fourth) there were numerous hemorrhages beneath the skin on all portions of the body and limbs, varying in size from 1 mm. to 3 cm. in diameter, being mostly circular in shape. The skin hemorrhages were very dark blue in color, appearing not unlike bruised spots, and those that were large felt more or less nodular to the touch. No hemorrhages within the eye could be detected with the ophthalmoscope, though the cornea was so hazy the examination was unsatisfactory.

The blood examination showed hemoglobin 92 per cent., red blood cells 5,120,000, white blood cells 11,600. The blood drop was very dark in color and coagulated quickly.

The urine examination was normal excepting excessive acidity.

The baby was well formed, of good size, and, with the exception of the hemorrhagic condition, seemed to be in good health. It was the eighth child to which the mother had given birth.

Internal administration of one drop of a 1-10,000 solution of adrenalin chlorid and two drops of ovoferrin were given every four hours, the eyeball was irrigated with warm boric acid solution every hour or two and cold compresses over the proptosed eye had been employed from the first day after birth. After two days of the internal treatment no fresh hemorrhages were observed, though the exophthalmos continued to increase, and $\frac{1}{2}$ grain calcium chlorid was now administered every four hours in addition to the adrenalin and ovoferrin.

The cornea was becoming more opaque and the conjunctiva so chemotic that hot applications were now substituted for the cold, but with little effect. No hemorrhages were observed after the sixth day, but the exophthalmos and chemosis of the conjunctiva increased so rapidly that on the eleventh day after birth the eyelids seemed to cover only the posterior half of the eyeball, the conjunctiva was greatly elevated and pressing upon the corneal margin, some pus had appeared in the anterior chamber and the pupil presented a somewhat grayish reflex from the interior of the eye, when light was reflected from the ophthalmoscopic mirror. On the following day the exophthalmos had increased, if possible, the cornea was so hazy that the iris was scarcely distinguishable, the amount of pus in the anterior chamber was greater, the child evidently was suffering very great pain, so that immediate enucleation was determined upon. This was performed under chloroform anesthesia. A large clot was found immediately behind the eyeball and there was more than usual bleeding when the optic nerve and central vessels were divided, but this deep hemorrhage was soon con-

trolled, as was the superficial hemorrhage from the conjunctiva, by the application of arterial clamps and pressure. The edema of the conjunctiva and orbital tissues promptly subsided, there was no secondary hemorrhage and the baby made an uneventful and rapid recovery.

Upon opening the enucleated eyeball there were found slight purulent infiltrations of the iris and ciliary body and marked purulent infiltration of the choroid. The vitreous was somewhat cloudy in the periphery, but did not seem to contain pus, probably because the condition had been present for so short a time. It seems, therefore, that the condition of the uveal tract can only be accounted for by the passage of an embolus from the umbilicus to the choroid, as there was no break in the integrity of the eyeball and there was no other condition present from which a septic embolus could have arisen.

In brief, the case was one of congenital exophthalmos due to orbital hemorrhage and accompanied by other symptoms of purpura which were followed by purulent uveitis and loss of the eyeball, probably produced by metastasis from the umbilicus, with the ultimate recovery of the patient.

UNILATERAL EXOPHTHALMOS IN EXOPHTHALMIC GOITER, WITH REPORT OF A CASE.*

W. M. CAMPBELL POSEY, M.D., AND WALTON C. SWINDELLS, M.D.

PHILADELPHIA.

(Illustrated.)

E. T., female, age 22 years, first noticed a prominence of the left eye two years before examination (November, 1903). She said that immediately prior to the time when the eye became more advanced than its fellow she had been frightened, upon several occasions, by the pursuit of a negro and that finally one evening, upon going to the front door, she was greatly terrified to be confronted by this man there. Instantly she felt a sensation of blood rushing through her entire body, and directly after this she noticed that the eye "stared." It was elicited that the patient had always been of a rather nervous temperament; that menstruation, which lasted from six to eight days and recurred at intervals of two weeks, had been painful and accompanied by some nervous irritability, by flushing of the skin, by some blueness of the lips and by a considerable loss of blood. She stated that she had palpitation of the heart upon exertion; that she was very warm-blooded and had

* Read before the Section on Ophthalmology of the College of Physicians of Philadelphia, March 15, 1904.

not worn thick underwear in winter for four years previous to examination. A year previously she had a fall, which occasioned a periostitis of the right shin bone.

When questioned concerning her family history it was ascertained that her mother, a woman of 50 years of age, was very nervous and had had a goiter, but without exophthalmos, for four years previously, and that a maternal grandmother was supposed to



A case of unilateral exophthalmos in exophthalmic goiter.

have died from cancer of the throat. Upon examination of the patient, as shown by the accompanying photograph, it was noted that the left eye was markedly proptosed, while the right was in its normal position. The characteristic lid signs of exophthalmic goiter were all absent in both eyes, with the exception of rather infrequent winking upon both sides. Both pupils responded normally to light and convergent stimuli, and there were no changes in the fundi. Palsy of the ocular muscles was absent, though the

patient had epilepsia when looking far toward the right, this being occasioned in all probability by the unequal degree of prominence of the two eyes. The thyroid gland was enlarged upon both sides, but more so upon the right. (She said that she did not know how long the swelling had been in her neck, though she was certain that when she first noticed the swelling it was confined entirely to the left side, the right side being affected later.)

The patient was sent to Dr. W. G. Spiller for examination, who reported as follows:

No distinct tremor of hands; grasp of each hand is good; facial nerves not affected upon either side; masseter contracts firmly upon each side. Tongue protruded straight and shows no fibrillary tremors. Pulse 82; no heart murmur. Biceps and triceps tendon and wrist reflexes normal. Patellar reflex very prompt upon each side, probably a little exaggerated. No ankle clonus. No areas of discoloration on body. Sensation for touch and pain normal in face and limbs.

The patient was admitted to a private room in the Howard Hospital and placed upon a strict rest cure for four weeks. Galvanism, 2 to 3 milliamperes, was applied to the neck for six minutes three times daily, and a pressure bandage was placed over the left eye. Syrup of hydriotic acid (5i three times daily) was administered internally. At the end of a month the circumference of the neck, which had measured $31\frac{1}{2}$ cm. upon admission, was reduced to 30 cm., and the degree of exophthalmos was lessened considerably. After her discharge from the hospital a strict regimen of rest, diet, and avoidance of excitement was insisted upon, and the improvement in both local and general conditions continues.

UNILATERAL EXOPHTHALMOS.

In a comprehensive monograph upon the subject of unilateral exophthalmos, Fridenburg¹ said that cases of exophthalmic goiter with symptoms limited to one side, are so unexplainable that several authors (Schott, *Deut. med. Zeitung*, No. 32, 1889; Marcus, *ibid.*, No. 48, 1903) deny the occurrence of such a variation, while Berger (*Bull. de la Soc. de Chir.*, p. 277, 1884) considers the presence of unilateral exophthalmos to be distinctive proof against the diagnosis of this disease.

Fridenburg, however, acknowledged the existence of cases of this character and himself reported one case and referred to another which had occurred in Jacoby's practice. In addition to these he collected the following ten cases from the literature:

¹ See *Treatise on Ophthalmology*, N. Y. Acad. Med., March 18, 1895.

1. DEMOURS (*Traite des Maladies de l'Œil*, Paris, 1818).
 2. DESMARRES (*Gaz. des Hopitaux*, 1853. N. 1, p. 2).
 3. MACKENZIE (*Pract. in the Diseases of the Eye*, 4th edition page 312, 1854).
 4. PRAEL (*Archiv f. Oph.*, 1857, iii, 2, p. 199).
 5. CHOVOSEK (*Wien. med. Woch.*, 1872, p. 194).
 6. YEO (*British Medical Journal*, March 17, 1877).
 7. YEO, *ibid.*
 8. BECKER (*Klinische Monatsblätter für Augenheilkunde*, xviii, 1880).
 9. ATALIE (*L'Univ. Medicale*, 1880, No. 157, p. 859).
 10. MAHER (*Lancet*, 1886, No. 1, p. 1221).
- Right-sided exophthalmos and right-sided goiter.
11. FRIDENBURG, *loc. cit.*
 12. JACOBY, same reference as Fridenburg.

Since the publication of this article a number of other cases have been reported, so that there is now no longer reason to deny the possibility of the occurrence of exophthalmos in one eye only, and its limitation to one eye during the entire course of the disease.

Just as there has been no satisfactory theory offered to explain binocular exophthalmos in exophthalmic goiter, so the occurrence of monocular exophthalmos still remains hypothetical; Sattler's supposition of a disturbance of the vasomotor center of the orbit of the affected side being as tenable as any yet offered. In any event, the reference of this, as well as all other symptoms, to a central nervous source is in harmony with the most recent views upon the pathology of the disease, and the fact that a number of cases have been reported in which the exophthalmos remained unilateral until within a few days before death, when symptoms indicating serious implication of the nerve centers appeared, would seem to give additional support to this view.

It was held for a time that cases in which but one eye was proposed exhibited an enlargement of the thyroid gland upon one side only, and that usually upon the side of the exophthalmos, but there is now ample evidence to show that while such may be the case in some instances, it is not the invariable rule, and that the exophthalmos and the swelling of the gland are quite independent of one another.

An idea of the frequency with which unilateral exophthalmos occurs may be gained by the statement that among 39 cases of exophthalmic goiter Wilbrand and Saenger found the exophthalmos unilateral in 4 cases; Griffith in 7 among 32; Emmert in 1 among 20.

In addition to the cases cited by Fridenburg, the following have also been found in the literature:

SICHELS (*Bull. Gen. Ther.*, vol. xxx, 1846, p. 349). Female, age 38; left eye proposed. Stellwag sign present.

VOLKELS. Female, age 78; the right eye proposed. Graefe and Stellwag signs both present.

PRAEL, 2 additional cases. (*Archiv für Ophth.*, 1857, iii, 2, p. 199.)

MAUTHER (*Wiener med. Presse*, 1878, No. 7, p. 199). Unilateral exophthalmos, with Stellwag sign.

MOOREN (*Ophthal. Mittheilungen aus dem Amer.*, 1873, p. 15, 1874). Female, 23; left-sided exophthalmos, with Graefe sign.

ROESNER (Inaugural Dissertation, Breslau, 1875). Male, age 41. Pulse 90-140. Bilateral goiter, but most marked on the right side; right-sided exophthalmos; Graefe lid sign upon affected side.

EMMERT (*Archiv für Ophth.*, vol. xvii, 1, p. 218). Female, age 17; healthy; right eye exophth.; cardiac palpitation; goiter on both sides; divergent strabismus.

DE GIOVANNI (*Referat aus der Deutschen Medicinal Zeitung*, 1889, No. 98, p. 1143). Unilateral exophthalmos as a consequence of palsy of the extraocular muscles and especially of the rectus superior. Goiter and other classical symptoms of Graves' disease were present.

BARELLA (Dissertation, Berlin, 1894). Male, age 31. No personal nor family history of neurosis; abscess of kidneys following gonorrhea; no goiter; pulse 150; exophthalmos of left eye; Graefe and Stellwag signs. Lessening in the degree of exophthalmos and in the frequency of the pulse followed the removal of the diseased kidney.

HITSCHAM (*Wiener klin. Wochenschrift*, 1894, p. 925). Female, age 35; left unilateral exophthalmos; left Graefe sign and left Stellwag sign; no goiter; marked nictitation in each eye. The field of vision was slightly contracted upon the temporal side in each eye.

MENDEL (*Handbuch der Pathol. Anatomie des Nervensystems*, Part V). Mendel reports a case of a female 35 years old, with slightly marked goiter, excessive tachycardia, tremor of the hands, hyperhidrosis, wasting; very marked right-sided exophthalmos, with Graefe and Stellwag signs. The left eye presented nothing abnormal. The degree of the exophthalmos was unchanged by excision of the right superior cervical ganglion.

TROUSSEAU (*Clinique Ophthalmol.*, 1902, April 10; abstracted in *Neurologisches Centralblatt*, Nov. 16, 1903, p. 1063) reported

three cases: 1. A 42-year-old nervous woman with unilateral exophthalmos and marked rapidity of pulse; two years later goiter appeared and the tachycardia became more marked; 2, 56 years old. woman with unilateral ptosis, Stellwag and Graefe signs; had symptoms of Basedow's disease since 25 years of age; 3. 38 years old. woman, several years with Basedow's disease. *The exophthalmos was first bilateral*, and then became unilateral, but the Graefe and Stellwag signs still persisted on both sides.

BISTIS. 3 cases (*Archives d'Ophthalm.*, July, 1903). Exophthalmos limited to one eye in all 3. Tachycardia present in all, but not goiter.

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

CHICAGO, MAY, 1904 VOL. XIII. NO. 5. NEW SERIES

Editorials.

A NEW ADVANCEMENT OPERATION AGAIN.

IF THE READER will turn to the April issue, 1902, of the OPHTHALMIC RECORD, he will find a contribution entitled "Muscle-Tucking—A Report of Cases and Conclusions," by Dr. J. Elliott Colburn. In the first part of his paper, Dr. Colburn claims to have done a muscle-tucking operation as far back as 1886, and I have no reason for doubting that he did this operation, just as he describes it in 1902. He claims in his paper that he reported this case in a discussion at the Cincinnati meeting of the A. M. A. in 1888, but it is certain that his discussion was not published. I was present at the meeting, but am wholly unable to recall the discussion, probably for the reason that, at that time, I took but little interest in the muscle study.

Without any knowledge of what Dr. Colburn had done, I devised the muscle-shortening or muscle-tucking operation, and published a description of same in THE OPHTHALMIC RECORD for March, 1893, and claimed it as my own. For ten years Dr. Colburn did not correct this claim, nor does he do so directly in his 1902 publication, for he uses in his paper this language: "My purpose in bringing up this subject of muscle-tucking or knuckling for shortening a rectus muscle, is to give my experience with the operation and my reasons for abandoning it."

Dr. Colburn must have been as ignorant of my publication made in 1902 as I was of his operation done in 1886, for he says, in 1902: "The *recent* revival of the subject may render my experience and report interesting."

Unless some published evidence is presented, which, of course, would set aside my claim, I will still insist that the muscle-shortening or muscle-tucking operation is mine. This claim has been conceded, by many authors, for many years. My estimate of the operation is high for the reason that it has been followed by good

results in all instances. I have as little intention of abandoning the operation as I have of denying that it is a product of my own thinking.

In the November, 1903, issue of *THE OPHTHALMIC RECORD* there appeared a contribution from my pen entitled "A New Advancement Operation." I claimed the operation as my own, never having read or heard of its having been done by any one. In closing that paper I expressed my willingness to surrender my claim to any one, at home or abroad, who may have previously published a description of such an operation. It affords me pleasure now to surrender this claim to Dr. J. Elliott Colburn of Chicago, who published in *THE OPHTHALMIC RECORD* in the April issue, 1902, the following language: "The advancing tuck operations (Figs. 9 and 6). First case: Girl aged 15, convergent squint, high hypermetropia in undeveloped orbitis. Tenotomy and tucking of both lateral abductions. The tendons were folded forward and attached near the corneoscleral junction." The language and the cuts make it clear to my mind that Dr. Colburn did an advancement operation without severing the tendon; and it was that kind of an operation that I described in the November, 1903, issue of *THE RECORD*.

Dr. Colburn's paper antedated mine by one year and seven months, and I ought to have been familiar with its contents, but was not. A further reading of his paper shows that he does not like either the muscle-shortening operation or the "advancement operation without cutting the tendon," because of the deformity or thickening that remains. This he would not have had if he had removed his stitches early, say about the fifth day. In my hands the two operations—the shortening in heterophoria and the advancement in heterotropia (sometimes in the high degrees of heterophoria)—have been most satisfactory. In my judgment, based on experience, the two are ideal operations. The shortening or tucking operation is my own child; the advancement operation without cutting the tendon I may call my adopted child, since Dr. Colburn seems to have abandoned it.

G. C. SAVAGE.

GOOD WORK AND THE CROWDED WAITING-ROOM.

It goes without saying that the medical profession is overcrowded, yet in no other vocation are its exponents so busy burning their candle at both ends. We are diminishing disease by our constant advocacy and dissemination of sanitary knowledge, and our colleges are busily engaged in the manufacture of competition by con-

stantly increasing our number with better prepared medical graduates, thus cutting off our means of income at both ends.

The public is being educated in another way, and we may well welcome this advance. The old doctor who just felt your pulse, looked at your tongue, wrote a prescription and rushed away to the next case, making twenty-five, fifty or even more calls a day, does not now get the chance to see as many patients as he used to, for the younger and better educated man is crowding him out. The latter takes time for proper examination, calls to his aid modern laboratory and instrumental methods for diagnosis, and studies his case before giving an opinion and instituting treatment. This is the kind of a medical adviser the better element of the public now demands.

Public opinion is likewise growing against the former slipshod and snap methods in office practice—where the appliances for scientific work are, or should be, at hand. The simplest complaint should be carefully investigated, and, in most instances, not only a local but a general examination is demanded, if we do what is right for the patient and what he hires us to do.

How many cases may be properly attended to in a day, that is, regularly, without wearing yourself out and yet have time not only to keep pace with modern medical thought, but occasionally to review the groundwork of medical practice and yet give you some time for rest, recreation and to become acquainted with your own family, i. e., to remain a proper consultant and citizen? The number naturally depends upon the man and the character of his practice. Some are quicker workers and thinkers; some men are stronger. There is, however, a limit to good work soon reached by the strongest of us. The writer believes that in no kind of medical practice, general or special, in an office or mixed practice, in the best or poorer classes, is it possible for the physician to see a vast crowd and do them justice. It is certainly impossible for the general practitioner to take care of more than twenty-five cases a day in a proper manner, and for some of the specialists, such as the neurologist, a dozen cases a day is certainly the limit; in ophthalmology and other allied specialties, perhaps two dozen a day may be justifiably treated by a single man in private practice. I have been told by certain doctors that they "had seen sixty-five cases that day," and heard of others that "had a hundred patients in their office every day." Perhaps this many may have been treated! If so, how? I believe that if a physician regularly treats more than what I have empirically enumerated in the course of a day, he is not giving his patients the worth of their money and is "quacking"

them; whether he charges 50 cents or \$50 for a consultation, or gives his advice free; no matter what is his fee, it is not worth his price!

Such men are not keeping their reputation; they lose it among the profession, and sooner or later their patients learn that they can receive better attention elsewhere. There are hundreds of really good practitioners in the cities of this state, and more in proportion in the country districts, who practice scientifically, are satisfied with doing good work, and only as much as they are physically capable. They demand better fees than the man who endeavors to take everything that comes to him; their incomes are as good, or better, and they are an honor to the profession, rather than impediments to its progress.

There comes a time in the life of a successful practitioner when his waiting-room becomes crowded, or he is called to many more cases than he can properly treat, and in the endeavor to hold them he is overworked. Let him then take an assistant from the scores of really capable young practitioners who are barely eking out an existence, cut out his night calls and otherwise limit his practice, letting the "other fellow" get some of his cases, thereby himself leading a more normal, useful and longer life, and remaining an honorable man.

H. V. W.

Reports of Societies.

SECTION ON OPHTHALMOLOGY.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Tuesday, March 15, 1904.

Dr. S. D. Risley, Chairman, presiding.

Dr. Charles A. Oliver gave a detailed report of both the clinical and histologic studies of the ophthalmic conditions in a case of sarcoma of the left cerebellum in a 48-year-old woman in whom eight years previously he had had opportunity of making an unequivocal diagnosis of just commencing retinitis albuminurica with but little or no involvement of the optic nerve, and no gross endarteritis or perivasculitis.

He believes the case to be of interest from several standpoints: The formation of a cerebellar tumor of sarcomatous type in a subject with previous renal disease; the existence of a low-grade macular chorioretinitis in both eyes with the characteristic ophthalmoscopic phenomena of a true retinitis albuminurica without any coarse signs of endarteritis or perivasculitis eight years before the gross type of neuroretinitis which is so peculiar to increased intracranial pressure, and particularly to that which is found in subtentorial neoplasms, appeared; the masking of the primary changes in the macular regions by the later gross ones of neuroretinitis with their postmortem exposure by the microscope (*i. e.*, the finding of the solitary remnant of the previous localized retinal and choroidal inflammation from disturbance in the vascular network—the mesh-like deposit of fibrin); the final rapid loss of vision in so brief a period of time (three months), which was shown postmortem to be caused by the almost if not quite complete atrophy of the nervous elements of the retina and the optic nerve; the disappearance of the negative scotomas with the subsequent irregular peripheral contraction with remaining star-like sectors of the rapidly lessening visual fields; the progressive types of exterior and interior ocular pareses and palsies, which were always more marked in the groups of the left side; the occurrence of trophic disturbances in the corneal membrane of the left eye (the eye which was always the one which was the more greatly involved); the enormous lengthening of the fibers of Müller, especially in the nuclear layers of the retina, giving rise to irregular elevations on the outer surface of the retina; and the gross hy-

peremia and moderate degree of inflammatory infiltration of choroid.

Dr. C. A. Veasey made a brief report of a case of spring conjunctivitis resembling malignant growth of the corneal limbus. The patient, a male, aged 24 years, had a red, angry looking growth 5×7 mm. in breadth, in the conjunctiva at the corneal limbus of the right eye that had been gradually increasing in size for two years. There were no ocular symptoms other than those of irritation. The growth was removed under cocain anesthesia, and microscopic examination seemed to indicate a suspicion of sarcoma. Eight months later recurrence was noted, together with a similar condition of the other eye and a few enlarged papillæ of the tarsal conjunctiva—symptoms typically indicative of spring conjunctivitis, which a further examination of the specimen and the subsequent history of the case proved to be correct.

Discussion.—Dr. Pyle emphasized the fact that the distinguishing feature of circumcorneal hypertrophy is that it is not destructive in character, which should readily differentiate it from phlyctenular disease, trachoma, or malignant growth. Scheile and Swan Burnett have pointed out the great increase in the cells of the epithelial layer and in the connective tissue, and de Schweinitz and Shumway have noted identical changes in the conjunctiva of the lid. The so-called “canceroid formations” are due to enormous increase of epithelial cells with invaginations. In all the reports of microscopic examination there is always mentioned hypertrophy and never destruction of tissue.

Dr. Wm. Campbell Posey and Dr. Walton C. Swindells (by invitation) reported a case of Graves’ disease, exhibiting unilateral exophthalmos. The patient, a female, 22 years of age, first noticed the prominence of the left eye two years previously. With the exception of some menstrual disturbances, she had been in good health. A fright, which was received directly before the protrusion of the eye manifested itself, was assigned as the cause of the exophthalmos. The patient’s mother had a goiter but no exophthalmos, and a maternal grandmother was supposed to have died from cancer of the throat. The characteristic lid signs of exophthalmic goiter were all absent in both eyes, with the exception of rather infrequent winking upon both sides. There were no changes in the fundi of either eye.

The authors referred to a paper upon the subject of unilateral exophthalmos in exophthalmic goiter, by Fridenburg, and his collection of ten cases of this affection from the literature. They stated that, as there had been no satisfactory theory offered to ex-

plain binocular exophthalmos, the occurrence of monocular exophthalmos must remain hypothetical; but they were of the opinion that this symptom, as well as all other symptoms of Graves' disease, could be explained by a lesion of the central nervous system. In addition to the ten cases reported by Fridenburg, the authors had found eighteen other cases in the literature, and the reports of these were appended.

Discussion.—Dr. Hansell referred to a case of bilateral exophthalmos which he has at present under observation. The goiter had existed for some time without marked protrusion of the eyeballs, but after a walk of three miles facing a strong wind, marked exophthalmos appeared, with all movements of the eyeballs abolished, the globes protruding 1 cm. beyond the palpebral fissure, and both cornea ulcerated. Dr. Risley spoke of a case of unilateral exophthalmos in which the Graefe sign was absent. The patient showed many evidences of disturbance of the vasomotor system, dermographism being particularly marked, the drawing of the finger over the skin of any portion of the body being followed by a distinct welt.

Dr. Charles A. Oliver exhibited two water-color sketches by Miss Paula Himmelsbach of this city, of the external appearances of chronic uveitis from interstitial keratitis in a 24-year-old woman, who still showed many of the other stigmata of hereditary syphilis, and from whom, by reason of pelvic deformity, a living child had been removed by Cesarean section.

Dr. S. D. Risley, in referring to one of the dangers in the use of powerful magnets, exhibited a patient from whom a rhomboidal fragment of steel weighing 2 grains ($2 \times 3 \times 6$ mm.) had been extracted from the vitreous chamber by the Haab magnet. The foreign body had been in the eye two weeks. There had been marked inflammatory reaction, and at the time of the extraction pronounced sympathetic irritation was present. It was not deemed wise, therefore, to defer the removal of the fragment for the purpose of careful localization by the x-rays. Although every precaution was exercised, the foreign body became entangled in the iris and was projected from the eye suddenly through the wound of entrance at the pole of the cornea, carrying with it all of the iris except a small triangle which was firmly adherent to the lens capsule above. Notwithstanding this grave traumatism, the eye recovered and the sympathetic irritation subsided.

In commenting upon the case, Dr. Risley called attention to a paper he had presented to the American Ophthalmological Society in July, 1902, quoting from it the views then expressed of the danger

from the use of powerful magnets. The present case was brought forward as a striking illustration justifying the claims made in the paper. He again claimed that the danger to the eyes was minimized by extraction with a weaker magnet through a scleral puncture near the site of the fragment; that in the case presented it would have been wiser to have made a scleral puncture, even without localization, than to have dragged it forward with a powerful magnet, as was done, to the great injury of the eye.

Discussion.—Dr. Sweet believed that the position of the metal in the eye and its approximate size and shape should be known in every instance before extraction is attempted with any form of strong magnet. The employment of the Röntgen rays for this purpose presented no difficulty to the expert in general radiography, and the method of localization was now in successful use in several large hospitals in other cities. In the extraction of foreign bodies from the vitreous he favored the use of medium-sized magnets to draw the steel through a scleral opening made near the previously determined position of the metal. As evidencing the importance of knowing the size of the foreign body, he cited a recent case in which a narrow scar in the sclera, $2\frac{1}{2}$ mm. wide, indicated the point of entrance of a piece of steel 10 mm. long and 2 mm. wide. An attempt to extract this piece with the giant magnet through the anterior chamber would have seriously injured the eye, since the operator could not have judged the size of the metal to be acted on by the magnet. Dr. Veasey stated that he always made a scleral puncture in extracting foreign bodies from the vitreous and that he preferred, in most cases, to employ the medium-sized magnet. Dr. Ziegler cited a recent case, where the wound of entrance was at the sclero-corneal junction and the radiograph showed the steel in juxtaposition on the ciliary body. The wound was enlarged, the eye rotated downward, the giant magnet applied and the foreign body extracted through the opening. Unfortunately the steel had jagged edges which lacerated the ciliary body and tore the iris, necessitating iridectomy. This might have been avoided by a scleral incision. Uveitis developed with hypopyon, but the eye is now doing well. He preferred the scleral incision, and could not see why detachment should follow if a quick puncture were made. The point of selection should be near the situation of the foreign body, between the muscular attachments, and parallel with the radiating vessels. He referred to a case presented to the section eight years ago, the metal being extracted with the Hirschberg magnet. There has never

been any reaction from the scleral incision, and vision has remained normal.

Dr. Risley presented for study a case of inflammatory glaucoma upon which iridectomy had been performed two weeks before. Three weeks before the operation the man, 55 years of age, suddenly became blind in the left eye without pain. There had been no prodromal symptoms, the right eye was healthy, he had had no transient attacks of dim sight. When he applied at the Wills Hospital the left eye was totally blind and presented all the classic symptoms of acute glaucoma ($T + 3$). No study of the fundus was possible. He was suffering great pain, and after two days of eserín instillation, blood from temple, purging and salicylates, a broad iridectomy was performed under general anesthesia, consent for the removal of the eye, if found necessary, having been first secured. The history pointed to a probable hemorrhagic glaucoma. There were no signs of intraocular hemorrhage at the time of operation, and the convalescence was uneventful but protracted. After two weeks ophthalmoscopic study revealed an extensive, partially absorbed hemorrhage, apparently in front of the retina, extending from the inferior temporal vein near the border of the disc, outward and downward, covering a large portion of the lower temporal quadrant of the fundus. Dr. Risley suggested in explanation that the glaucoma was caused by the overfilling of the excretory channels by the absorbing hemorrhage. There was no other evidence of blood vessel disease.

Dr. Howard F. Hansell reported a case of a bullet removed from the orbit after localization by the x-rays. On Feb. 15 Miss S. attempted suicide by shooting. The bullet from a 22-caliber pistol entered the right orbit. The patient was removed to a hospital, where it was determined that the injury was limited to the orbit. Two weeks later there was complete paralysis of the third nerve, swelling of the drooping lid, chemosis and ecchymosis of the conjunctiva, divergence, dilatation and immovability of the pupil, rotation of the ball restricted in all directions, ciliary injection, tenderness on pressure over the ciliary region, and complete blindness from detachment of the retina and blood in the vitreous chamber. By means of his localizing apparatus Dr. Sweet determined the position of the bullet to be posterior to the meridian of the ball and between the ball and the *inner* wall of the orbit. Incision through the upper nasal third of the upper lid and dissection of the underlying tissues, exposed the bullet, and it was removed. Its course

had been upward and forward, striking the roof of the orbit and being deflected by the bone into the position in which it was found. The patient recovered promptly from the operation and has regained considerable movement of the eye in all directions.

WILLIAM M. SWEET, M.D., Clerk of Section.

WILLS HOSPITAL OPHTHALMIC SOCIETY.

Stated Meeting, held at the Hospital, March 14, 1904.

Dr. William Zentmayer, Chairman.

DISCUSSION ON GLAUCOMA.

Dr. Frank Fisher, in order to open the subject, cited the histories of two diametrically opposed types of such cases which had recently come under his observation. He desired to know under what conditions an iridectomy should be performed; when should enucleation of a glaucomatous blind eye be done; and if enucleation be done, what effect would the procedure have on the fellow eye. He was uncertain as to the character of the visual fields serving as a guide to the value of an iridectomy, they being so unstable and uncertain. His experience had led him to ignore the usefulness of the degree or the grade of visual acuity as offering itself as a therapeutic guide. In some eyes which had become blinded from glaucoma processes he had found that eserine failed to produce pupillary contraction. He had been interested in studying a series of cases of glaucoma, in which there had not been any consanguineous marriages. He gave the detailed history of one such family, and had more or less knowledge of some others. He inquired what had been the experience of members of the society in regard to the ophthalmoscopic appearance of the eyeground and media after the performance of posterior sclerotomy. He asked this question, as he had seen two cases in which he could locate the position of the internal traumatism by a localized rupture of the choroid. He would like to know the most tenable theory for the more or less reduction of intraocular tension in cases in which posterior sclerotomy had been done. He asked the question whether the vitreous elements were re-formed or not. He would like to know if any members of the society had, like himself, seen recession of optic nerve head cupping after successful iridectomy.

The chairman stated that he enucleated the offending eye in absolute glaucoma, with a possible previous attempt at iridectomy. He preferred an iridectomy, if possible, in acute inflammatory glaucoma. His studies with the visual fields in chronic glaucoma

had taught him that the character of decreases and the peculiarities of lessened areas were not in any way characteristic or typical.

Dr. Conrad Berens believed that enucleation tended toward the conservation of the energies of the other eye, his experience being that vision and intraocular tension of the remaining eye are preserved for much longer periods of time. His experience had taught him that the earlier an enucleation is done, particularly in a painful eye, the safer it is for the other one. If possible, he preferred an early iridectomy in all appropriate cases. In some cases of systemic type he eschewed all forms of operative procedure and preferred to wait for some acute condition necessitating radical measures, watching and guarding over the general system, and directing his main therapy toward the general dyscrasia at hand. He had found good results from the injection of large doses of iodid of potassium in association with the salicylates. He had found that the more he had to deal with the condition the more he depended on remedial measures, reserving, as a rule, operative interference for cases of the fulminating type. He had observed the effects of climate on such cases, and spoke of the effects of psychologic processes on the condition of the patient. He mentioned his experiences with the results that he had obtained in some of his chronic cases by the employing of varying strengths of synoidal currents.

Dr. McCluncy Radcliffe showed a case under his care in the hospital in which by enucleation of the blind eye, in combination with appropriate local and general treatment, the ordinarily seen progressive and disastrous symptoms, he felt sure, were rapidly and painlessly disappearing in the fellow eye.

Dr. Charles A. Oliver said that no fast and hard law could be laid down in any particular case; each one, and even the same case at different times, demanding what might be aptly termed "symptomatic treatment." After a large experience with various operative measures, in association with carefully graded local and general therapy, and above all, hygiene with well regulated, cheerful surroundings, and early treatment directed toward the removal of any possible offending dyscrasia, he had in many cases ceased to be disturbed as to the probability of ultimate failure; in other words, he made it an unalterable rule to exercise constant vigilance against the general and special inroads of any causative factor with the prompt removal of the disturbing local conditions in the easiest and the most conformable way possible in each case. Whenever possible, he enucleated an eye which had become blinded from glaucoma, as he had learned from experience that it was the safest

and the most certain of all of the radical procedures in certain types of cases for the good of the fellow eye; in fact, he was certain that it undoubtedly seemed to have a beneficial influence on the fellow organ, whether it was injured or not. The question of the performance of an iridectomy he reserved to cases in all stages, more particularly the incipient and practically unadvanced ones, in which he felt that there was either a present necessity or an advantage in the future to be gained by opening as much as possible of an imperfectly acting filtration angle. In some cases of coarse severity he repeated the iridectomy, and even had successfully and usefully removed the crystalline lens. He uniformly reserved his operative procedures to the individual organ in question. He spoke of having seen some cases in the hands of some of his colleagues apparently do well by the employment of cyclotomy, and believed that the measure, if not too disturbing in its immediate traumatism, possibly did good by destruction of some of the lymph-making glands. He asserted his disbelief in a proper regeneration of the vitreal elements, believing the vitreous to be like crystalline lens, an organized body, which, once removed or destroyed, was replaced with ordinary lymph. In consequence, he doubted the efficacy of all procedures in which loss of the vitreous body constituted a part. He denounced the term "liquid or fluid vitreous," and said that the replacement of the vitreous humor by ordinary lymph in which there were loose vitreal elements with uveal debris, merely tended to provoke glandular action with consequent increase of the intraocular fluids. He spoke of the classical experiments of Uribe Troncoso on the effects of altitude on density of the intraocular fluids, as well as the morphologic conditions of the fluids themselves. As one of the results of a return of intraocular pressure to normal, he had more than once seen temporary lessening and even disappearance of shallow pathologic cuppings in the optic nerve head, particularly in the temporally placed finer fibers.

Dr. S. Lewis Ziegler spoke of the advantages and the good results he had personally obtained in certain varieties of cases by the performance of posterior sclerotomy. He made the procedure by a quick plunge with a von Graefe knife with its back directed toward the ciliary body some six or eight millimeters back of the ciliary region, between the muscular attachments, and parallel with the radiating vessels. He rotated the knife at right angles to the first incision, allowed a few beads of vitreous to escape, and withdrew the instrument, thus making a T incision. He had found that there is immediate hypotension, and there is never any reaction. His

experiences had coincided closely with those given by Dr. Oliver. In the blind eyes of some such types he had had useful recourse to opticociliary neurotomy, having, he remembers, in more than one instance kept a functionless eyeball intact and free from pain and harmful influences for a period of nine years. He mentioned several interesting examples of the various conditions, showing the multiplicity and variability of the symptom-complex in cases which had come under his immediate observation, distinctly proving the efficacy of certain procedures in some cases, and the inefficiencies of many authoritative measures that had been strictly applied in others. The more extended his experience had become in such an enormous mass of material as was almost daily given him in such a large service as in the outpatient department of the hospital, the broader and the more conservative had become his views in regard to therapeutic measures. He was daily waiting for opportunity, and was more than willing to apply any plan of therapy which offered in the least a greater chance for the patient's welfare. On being asked whether he would do an iridectomy at the time of the appearance of the earliest signs and symptoms of the disease, he answered that he would in appropriate cases. He had never had any intraocular complications of inflammatory type to arise after the performance of posterior sclerotomy. In a number of painful cases in which immediate operative procedure could not be done he had most useful recourse to a formula containing hyoscine hydrobromate, morphin, strychnin and pilocarpin, a combination which not only subdued pain, but which both stimulated and controlled lymph circulation. In support of his claim for the value of these therapeutic agents he cited three most interesting confirmative cases which he had seen at the hospital several years previously. In the use of electricity he had had considerable experience, finding a most curious paradoxical result that pain and tension are reduced when the negative electrode is applied to the eyeball. In his hands pneumo-massage had given but moderate effects in some cases of chronic glaucoma.

CHICAGO OPHTHALMOLOGICAL AND OTOLOGICAL SOCIETY.

Regular Meeting, April 12, 1904.

Dr. Oscar Dodd, President.

A CASE OF SECONDARY SYPHILIS OF BULBAR CONJUNCTIVA.

Dr. W. F. Coleman showed a man, aged 36, good health, syphilis 19 years ago, chancre within the past three weeks. A mercurial

preparation given by the druggist had promptly salivated him. Quite a deep ulcer is to be noted on each side of the soft tonsil. There is an ulcer on the bulbar conjunctiva of the left eye, to the left of the cornea, which Dr. Coleman would call a mucous patch or ulcerating papule, it not being sufficiently elevated for a papilla. The case was considered somewhat rare. The best literature on the subject had been found in Bull's article in the *Am. Jour. of Med. Sciences*, October, 1878.

PAPILLOMA OF THE CONJUNCTIVA.

Dr. Thomas Faith presented this case of papilloma of the conjunctiva, which had first appeared seven years ago. The patient had some trouble at that time with the glands of the neck on the right side. The growths had been removed in some way by electricity, and five years ago Dr. Knapp of New York City had thoroughly scraped the conjunctiva. It recurred and was again removed. Within the following year he was under the treatment of Dr. Schneider of Milwaukee, who removed a portion of the growth. He had been under Dr. Faith's observation since last July, with the condition as seen at present. This flesh-like growth covers the conjunctiva of the upper and lower lids, particularly the lower. It had been scraped off twice, but reappeared. Some portions which had the typical appearance of papilloma were sent to Dr. Evans for microscopic examination, who returned the following report:

"Microscopically this is a borderline papilloma, though probably non-malignant. At the bottom is a slightly inflamed sclera, superficial to which is a papilloma. In certain areas the epithelial covering is heavy, but the border line is clear-cut. In most of the areas the interpapillary epithelium is in quite heavy compound branching processes and is fairly malignant in appearance. The epithelial cells are deeply staining. The blood vessels of the adjacent tissues, the connective tissues and the epithelium are quite well filled with leucocytes. Do not trust it far."

Dr. Faith was confident this should be removed, but had not been very successful in his own experience.

A CASE OF GLAUCOMA SIMPLEX.

Dr. Faith also presented this case. The patient had come on March 12 with a history of two years' trouble with the eyes, complaining that satisfactory glasses could not be obtained. He was wearing 450 plus spher. for reading, 41 years of age. Right eye 20/120; left eye 20/40. The disc was slightly excavated. Fields about 30 deg. in diameter, that for color being quite as good as for

form. The patient was put on $\frac{1}{4}$ per cent. solution of eserin. After four days the vision was 20/50 right and 20/30 left. The fields were found considerably larger than before and larger on the temporal than the nasal side. The eserin was increased to 2 grs. to the ounce, and the next test the vision was 20/30 R. and 20/20 L., the fields showing a still greater increase, especially on the temporal side. The appearance of the disc has changed markedly in the last two weeks, it being much more cupped. The vision and fields have been maintained stationary by increasing the strength of eserin. Dr. Faith inquired whether or not he should do an iridectomy.

Discussion. Dr. F. Hotz said there could be no question as to the dealing with papillomatous growths, but judging from the many years this process had been going on, the reported mechanical interference—and if the report of the microscopist is correctly judged, the growth has not extended into the deeper tissues—it could hardly be regarded as a malignant growth. There seemed to be a marked tendency to proliferation in the papillæ. Dr. Hotz suggested the daily application of iodoform, thoroughly rubbed into the crevices of the upper lid. This had been used with success in several cases of hypertrophy of the papilla and conjunctiva.

Dr. W. F. Coleman said he would think of treating this with nothing but the x-ray. The bulb will tolerate the treatment without burning it when other surfaces will not. He had repeatedly caused necrosis of the derma of the lid, without the bulb suffering in the least.

Dr. Pinckard described a similar case in his practice thirteen years ago, which had been treated according to Dr. Hotz's suggestion with iodoform, but with no particular result.

Dr. George F. Suker, speaking of the case of glaucoma, advised that no iridectomy be done at present, as the attack may be temporary.

EMBOLISM OF THE CENTRAL RETINAL ARTERY.

Dr. Remmen presented a patient reported as having lost his sight suddenly two days previously, and claimed to have had rheumatism. The vessels were small and interrupted, and the blood could be seen in broken columns circulating back and forth. There is marked edema of the retina, but there is a spot, to the temporal side of the nerve, not affected, probably supplied by a cilio-retinal artery.

Discussion.—Dr. Würdemann recommended the employment of deep massage in cases of embolism of the central artery. This massage should be deep and around the ball, through the closed lids. In his case salicylate of soda was also used. In one of these

sight was restored in four days, and in another an island of vision was secured.

Dr. Coleman spoke of a case in his practice, with vision at four feet and a field of perhaps two-thirds, in which twelve applications of galvanism with a current of five milliamperes restored vision and field to normal.

PERI-ARTERITIS (?) OF THE INTERIOR TEMPORAL BRANCH OF THE RETINAL ARTERY.

Dr. Thomas Faith presented a young lady 23 years of age, with a history of perfect health, excepting that 10 years ago she had quinzy; has been a seamstress since 14 years old. Five years ago had headaches on account of refractive error, which glasses perfectly relieved. Six months ago was taken with severe headache, pain in eyes and feeling of pressure in head, which gradually grew worse. Consulted the speaker three weeks ago. The nerves in both eyes were found to be fuzzy in appearance, the margin blurred, and in the right eye a distinct change in the inferior temporal artery, starting near the disc and extending out for some distance, having much the appearance of an embolism. Around this was a splash-like appearance. Vision 20/20 with glasses and the fields normal. There is a polyuria, but otherwise the urine is normal. On iodids the vision remains the same, but the headaches have completely disappeared. The splash-like appearance in the retina is gone, and in its place are small areas that look like choroiditis.

Discussion.—Dr. F. Hotz, who had examined this case, said he thought it a case of choroidal infiltration.

Dr. Faith added that there was certainly a change in the arterial wall, whether primary or secondary he was unprepared to state.

PARTIAL FIXATION OF THE GLOBE FOR THE IMPROVEMENT OF THE VISION IN CERTAIN CASES OF NYSTAGMUS.

Dr. J. E. Colburn read this paper. He called attention to the fact that the improvement of vision resulting from glasses is hardly appreciable owing to the fleeting impression received. Several such cases he had greatly benefited by means of tenotomy and advancement. The last three cases coming under his care he had benefited by limiting the mobility of the eye, fixing the external rectus muscle at or near its anterior fourth to the orbital periosteum and connective tissue at external canthus. Under cocaine anesthesia the eye was placed in the central position by an assistant, and a small wound made in the external canthus for the purpose of marking its position. Then rotating the eye in, the conjunctival cut was enlarged and the muscle exposed. The external orbital cheek was

freely exposed and the periosteum wounded. A double armed suture is then passed through the muscle, then deep into the periosteum, emerging in the conjunctival sac and tied. By this means he has been able to loosely fix the eye in the median position, with quite free movement upward and downward.

IRIDECTOMY FOR GLAUCOMA AND ITS IMMEDIATE AFTER-TREATMENT.

This paper was read by A. B. Hale, M.D. Reported in full on page 194.

Discussion.—Dr. Suker said that he would go a step further than the essayist, and say that an iridectomy for any purpose should not be followed by either atropin or eserin.

Dr. Hotz said that he fully agreed that the effect of a surgical procedure should not be clouded by the use of medicines; that the only rational way in which to adjust the after-treatment was by observation of the healing process. If evidence of iritis was observed, he would not hesitate to use atropin, as he would in any case of iritis. The healing concluded, the use of eserin would be indicated by an increased tension.

A LUMINOUS TEST CABINET.

Exhibited by Dr. N. M. Black.

Discussion.—Dr. Suker thought the suggestion admirable, but found some objection to German test type.

Dr. Colburn said the illumination of the entire room had much to do with the test, aside of the illumination of the card seen.

Dr. Würdemann said that for the past three years he had used a similar instrument to the one shown in his refractive work, and that by drawing the blind to the window he was always able to get the same degree of illumination.

Dr. Gradle, the use of a transparent test card hung in the window, to be reflected in a mirror at the opposite end of the room.

Dr. Mann objected to transparent letters in the window, owing to the fact that on dark days the illumination was very poor.

Dr. Black, closing, said he had tested the cabinet in all kinds of weather and condition and found the transilluminated test type could be maintained always the same, porcelain being absolutely free from refraction.

A METHOD OF MUSCLE SHORTENING, WITH PRESERVATION OF THE TENDON.

Dr. George H. Suker read this paper.

1. Appeared in full in the April number of THE RECORD.

THE COLORADO OPHTHALMOLOGICAL SOCIETY.

Meeting in Denver, Colo., Feb. 20, 1904.

Dr. Coover showed the following cases:

TRAUMATIC CATARACT.

CASE 1.—J. P., male, aged 21. Traumatic cataract of the right eye, caused by scale of steel 2 mm. in diameter, which had been unknown to patient, imbedded in the eye one month, and was only discovered by him when he got foreign body in the left and learned that he could not see with the right. Sweet's magnet was applied and lens came forward, the scale being seen to turn in the lense substance. An incision was made at external sclero-corneal margin, and while placing magnet at this opening the steel disappeared, probably passing through the incision and dropping to the floor when the current was temporarily turned off.

Magnet applied three times since with negative result. Eye quiet, with lens still swollen.

MALARIAL AND DOUBLE IRITIS.

CASE 2.—Y., aged 30. Rheumatic history. Inveterate tobacco user. Gonorrhœa seven years ago. In 1901 took post-graduate course, reading much at night, always with strong light at his right side. Noticed some visual disturbance at this time. Examined by reputable specialist, who told him he was simply nervous from overwork and that there was nothing abnormal present. In a few month double iritis developed, which was relieved by KI inunctions of mercury, salicylate of soda and quinin. Since this time iritis has developed every 30 to 90 days, and during each attack numerous opacities of the vitreous appear. At times patient is completely blind; at present under salicylate of soda treatment; vision in O. D. is very much reduced by vitreous opacities, which are probably permanent, having been present for the past two years; O. S. vision is 6/5, there being present some slight vitreous haze. Repeated blood examinations. All negative.

Discussion of Case 2.—Dr. Libby suggests drinking much water and sea-salt baths.

Dr. Jackson would look after malaria carefully, rest eyes and use sub. conjunctival salt injections.

Dr. Bane would try green iodid mercury, gr. 1¼ t. i. d.

Dr. E. M. Marbourg reported the following case:

PHTHISIS BULBI.

Miss M., aged 52; right phthisis bulbi; rheumatic history. She was treated for some painful eye trouble some years ago. Came

into his service one year ago for iritis of O. D., which was subsiding nicely under regular treatment. Dr. M. was called east and the case fell into the hands of an osteopath, who gave the eye vigorous massage, after which the present condition developed.

Dr. Marbourg made clinical report on feeble myotic action of dionin, and suggests this as a reason for its beneficial action when combined with eserin.

Dr. Libby reported case of a married woman, aged 22, pregnant, who was first seen Feb. 18, 1901, with normal vision, but complained of frontal, vertical and occipital headache, associated occasionally with nausea. Also subacute conjunctivitis. Correction of low hyperopia gave complete relief.

March 23, 1903, puffiness noticed under the eyes; inability to distinguish objects across the room or to recognize any but most familiar faces. Abundant albumin was found in the urine. Convulsions occurred April 4, 5 and 6. On latter day, labor was artificially induced by attending physician.

Vision slowly but gradually improved, but does not see as well now as formerly. Aug. 2, 1903, the refraction is unchanged, but the old glasses are decidedly annoying for distance, making close work easier, but not clearer.

Dr. Stevens reported case of male, aged 52.

DEGENERATIVE LESION OF THE PONS.

Attack of la grippe spring of 1903. The patient is very weak. Five weeks ago developed diplopia, paresis of right external rectus, also left internal rectus. When right eye is screened, paresis of left eye disappears, and vice versa. Field and fundus normal. Numbness of lips and left fingers. Patient was sent to California without benefit. Diagnosis, degenerative lesions of pons. Dr. Stevens reported the case to show one of the unusual after-effects of la grippe.

J. A. PATTERSON, Secretary.

Reviews.

Tscherning on the Mechanism of Accommodation.—*Annales d'Optique* (Paris), March, 1904; *Ophthalmic Review* (London), April, 1904. The theory of Tscherning in regard to the mechanism of accommodation has now been before the profession for six full years, but judging by the attitude taken toward it by American ophthalmologists, as shown in their recent text-books and other writings, it seems to indicate a hesitancy in its acceptance. The reviewer believes that the facts already determined quite fully establish its correctness. A more intimate knowledge of it is, therefore, desirable, and with this end in view he hereby presents quite at length the latest utterances of Tscherning on the subject.

He first speaks of the theory of Helmholtz, who showed that during accommodation both surfaces of the crystalline lens become more convex and the lens a little thicker. Helmholtz considered that in a state of repose the crystalline lens is maintained flattened by traction exercised on the zonule, but that a contraction of the ciliary muscle itself has the effect of relaxing the zonule in such a manner as to permit the lens to become more convex by reason of its own elasticity. This explanation has been accepted almost without question until recently. The experiments of Tscherning, substantiated by those of Carl Grossman¹ and others, leads him to draw the following conclusions:

"The change in the anterior surface of the lens produces about six-tenths of the accommodation; the change in the posterior surface four-tenths.

"The lens increases in thickness during accommodation; the anterior surface moved forward in all our cases, while the posterior surface moved a little backward, except in the first case, where it seemed to move rather slightly forward.

"The anterior surface becomes flattened toward the periphery. This flattening, already manifest in the state of rest, becomes strongly marked during accommodation, while at the same time the curvature of the middle increases.

"By comparing, in dioptries, the refractive value of the changes in the anterior surface of the lens, we find a difference of about three dioptries between the central and peripheral parts. In addition to this, on examining the eye by skiascopy or otherwise, we find

¹ *Ophthal. Rev.*, January, 1904.

a difference of five or six dioptres between the central and peripheral accommodation; from which we may infer that the posterior surface of the lens must also become flattened toward the periphery during accommodation."

Thus, with a precise information as to the form of the lens in accommodation, it is more easy to imagine the mechanism by which its change in form may be brought about. The author then continues:

"I may be allowed here to give a short statement of my views concerning this mechanism. There can be no doubt that accommodation is due to a contraction of the ciliary muscle, for there are no other muscles in the interior of the eye, excepting those of the iris, which have no rôle in accommodation. As to the action of the ciliary muscle, Helmholtz makes the following statement (*Physiol. Optik.*, 2d edition, p. 23):

'Bruecke, der den Muskel entdeckte nahm an, dass er die Aderhaut (und die mit dieser an der ora serrata engverbundene Netzhaut und Glashaut) un den Glaskörper ausspanne, Donders dagegen dass die Aderhaut sein fester Ansatzpunkt sei, und er im Gegentheil den elastischen Theil der inneren Wand des Schlemmschen Kanals verlängere und so den Ansatz der Iris nach hinten rücke. In Wahrheit verbinden sich beide Wirkungen mit einander.'

"There can not be much doubt that contraction of the ciliary muscle is followed by the effects here described by Helmholtz, for we see the peripheral part of the posterior wall of the chamber move backward slightly during accommodation, at the place which corresponds to the anterior extremity of the muscle, and, in addition to this, Hensen and Voelkers have shown that the posterior extremity of the muscle moved forward during accommodation. In their experiments (on dogs) the equatorial part of the choroid was drawn forward about one-half of a millimeter, and it follows that the posterior extremity of the muscle must move forward or rather inward an equivalent distance. But I have never been able to understand how Helmholtz, holding the above-mentioned opinions as to the effect of the contraction of the muscle, could imagine this contraction could produce a relaxation of the zonula (the fibers, I mean, which pass to the anterior surface of the lens). We should distinguish between the *free part* of the zonula, which passes from the lens to the ciliary body to be inserted a little behind the summits of the ciliary processes, and the *adherent part*, which is continued on to the *ora serrata*. The latter part of the zonula adheres on the one side to the ciliary body, and on the other to the vitreous body in such wise that they can not be separated without tearing. The place

of insertion of the free zonula is found to be well in front on the ciliary body, nearly on a level with the insertion of the muscle in the wall of Schlemm's canal.

"Now, as the fibers of the zonula which pass to the anterior surface of the lens take a direction almost parallel to that of the muscle, it is obvious they must become tense when the muscle contracts, while the fibers which go to the posterior surface will be relaxed. I have shown that traction made on the zonula of the dead lens produces a deformation of its anterior surface, analogous to that which we observe during accommodation, the curvature increasing in the middle and lessening toward the edges. This phenomenon, which is due to the greater resistance of the central part of the lens, has been verified by Dr. Czsellitzer at the Heidelberg Laboratory. There can, then, be no difficulty in understanding the mechanism of the changes in the anterior surface of the lens. But how shall we explain the changes observed in the posterior surface? . . . In consequence of the contraction of the ciliary muscle the peripheral anterior parts of the vitreous body will, therefore, be drawn forward toward the lens. If we bear in mind that the zonula is attached not to the very edge of the lens, but to parts on the anterior surface, a little within the edge, it will not be difficult to understand why the diameter of the lens diminishes during accommodation. It is for the same reason that the posterior surface becomes flattened toward the edges; the peripheral parts of the lens are compressed between the anterior capsule drawn backwards in consequence of the traction on the zonula, and the posterior capsule pushed forward by the vitreous body. We understand also why, under these circumstances, there is a protrusion at the posterior pole of the lens, where the vitreous humor is not drawn forward and where its resistance is further diminished by the presence of Cloquet's canal. It is probable that in most cases the lens is pushed a little forward, but that this displacement is corrected or overcorrected, insofar as the posterior surface is concerned, by the protrusion of the posterior pole, in such manner that the posterior surface, in the middle, remains in its place or moves backward a little, while the anterior surface moves forward. The advancement of the lens stretches the anterior zonula, so that we are not obliged to admit that the anterior insertion of the ciliary muscle moves backward. If I have, nevertheless, admitted a slight backward movement of the anterior insertion, it is because we see such a movement at the angle of the anterior chamber, and because I have observed cases in which there was little or no advancement of the anterior surface.

"I believe that this way of explaining the mechanism of accom-

modation may replace with advantage the more or less mystical notions concerning the nature of the elasticity of the lens with which we have been satisfied up to the present time. But there is still another series of phenomena to be observed when the accommodation is exerted to its maximum, which may, I think, furnish a direct proof that I am right in admitting the action of the ciliary muscle on the vitreous body as the second factor in the mechanism of accommodation, besides the traction exerted on the anterior zonula.

"In the first place, there is the so-called descent of the lens toward the end of the accommodation. I have found that the image reflected by the posterior surface descends a little when the accommodation reaches its maximum. Sometimes the image of the anterior surface descends also at the same time, but its displacement is much less than that of the image of the posterior surface, and there are persons in whom no such displacement of the image of the anterior surface is to be observed. Observation by the oblique illumination and by the entoptic method shows that the lens substance is really displaced a little in a downward direction. Professor Hess has recently shown that this displacement occurs under the influence of weight; it takes place toward the temple or toward the nose, when the head is inclined toward one shoulder or the other. . . . According to the observation of Hess, of which there can be no doubt, this displacement occurs under the influence of weight, and, as I have shown in the foregoing remarks, the vitreous body must partake in the movement. I do not see how a relaxation of the zonula could produce such an effect. But the phenomenon is also capable of another explanation. The substance of the crystalline lens is, in fact, free in its capsule, and the phenomenon can be quite as well explained if we admit that the crystalline substance is displaced a little downwards by reason of the relaxation of the posterior capsule. The phenomenon would thus indicate not a displacement, but a deformation of the lens.

"Another phenomenon of the same order is the trembling of the little image, and also of the lenticular mass observed in consequence of the movement of the eye after an instillation of eserine. It is, in general, not to be seen during the physiologic act of accommodation: it may be because the patient relaxes his accommodation a little when he changes the direction of his glance, or it may be that we have here to do with some special effect of eserine: we might, for instance, imagine that a very prolonged accommodative effort would be required to produce the effect in question.

"It has been said that the lens trembles in consequence of the relaxation of the zonula, admitted by Helmholtz, but I do not believe that anyone has seen the image of the anterior surface tremble; I think also that most clinicians will agree with me that generally no trembling is to be observed in cases of subluxation of the lens. My own opinion on this phenomenon is that it depends, like the preceding one, on the relaxation of the posterior capsule. But there is an inference which seems to me to force itself upon us by reason of these observations—an inference which will seem, perhaps, surprising—namely, that the central parts of the vitreous body become liquid when the accommodation reaches its maximum. I do not believe it possible to give any other satisfactory explanation of the trembling of the little lenticular image. We can also readily understand the slight deformation of the lens under the influence of weight at the moment when there is nothing more to keep the protrusion at the posterior pole in its place.

"In what way can this change be brought about? Unhappily, our knowledge of the structure of the vitreous body is far from perfect. Anatomists appear to be agreed as to the existence of Cloquet's canal, which is said to be about two millimeters in width and to traverse the vitreous body from the papilla to the posterior pole of the lens. Certain observers distinguish between a cortical portion and a nucleus. The cortical portion which is said to fill the posterior half of the globe, is composed of concentric layers, while the nucleus, the only part in contact with the ciliary body and the lens, is said to be traversed by septa passing from the ciliary body to the central canal. We must not, however, consider these septa as membranes; they are comparable rather to the network of a sponge.

"It appears to me probable that during accommodation the ciliary muscle draws upon the nucleus or rather upon the network of the nucleus, and thus produces a dilatation of Cloquet's canal, together with the change in the posterior surface of the lens. It may be said also that certain other facts observed by anatomists seem here to find their explanation. I may mention the radiating fibers of the ciliary muscle, which terminate by forming loops in front of the vitreous humor. The function of these fibers has not been explained up to the present time, but their direction shows that they must necessarily exercise such a traction as I have supposed. Anatomists have also noticed, as it seems with a certain astonishment, that the fibers of the zonula lose themselves, at least in part, in the vitreous body."

ALVIN A. HUBBELL.

On the Prognosis, After Operation, in Glioma of the Retina.—By Walter H. Jessop, M.B., F.R.C.S. In the St. Bartholomew's Hospital Reports, volume xxxvii, p. 159. Jessop published a paper on the "Pathology of and Prognosis in Glioma of the Retina," which I reviewed in the Record for July, 1903, volume xii, No. 7, p. 342. As a supplement to that and other earlier papers, he publishes in volume xxxix, p. 213, of this hospital's reports, a valuable contribution on "The Prognosis, After Operation, in Glioma of the Retina." The present paper is based upon the recent histories of the six cases which were described in volume xxxviii, and upon a comprehensive review of the literature on the subject of glioma. Jessop considers all the cases as falling under the two great clinical classes—the intraocular (those in which the growth was contained within the eyeball, including the nerve as far as the lamina cribrosa), and the extraocular (those in which the optic nerve was affected beyond the lamina cribrosa, or in which the sclerotic had been perforated). He ventures to make exceptions to the published statistics of other observers, because these reports do not concisely specify the relative proportion of cures in these two classes. So also do they fail to state whether the optic nerve had been examined, nor do they give the length of the nerve excised. In many cases the final result also was not given. Another great difficulty is the fact that it is often almost impossible to say positively whether the nerve is infiltrated with tumor cells or only affected by inflammatory cells.

Wintersteiner gives 13.7 per cent. of recoveries if two years be the interval, or 16.3 per cent. if one year be taken. In Jessop's opinion these percentages are too low, because they include those cases not operated on; also those in which the later history is unknown, and those in which death from other causes ensued too soon to allow time for recurrence. After making these reductions the percentage of recoveries after one year would be 24.3, after two years 20.4, and after three years 16.5. In a further analysis of the statistics of other observers, he is inclined to the belief that one year is near the true estimate, which would, therefore, give about 40 per cent. of recoveries. In one instance only, of a total of 47 fatal cases, it was doubtfully intraocular, the nerve being apparently not involved; all the other 46 were extraocular; 11 of these had perforated the sclerotic at the time of the operation. In one of these cases the optic nerve was healthy, and in another doubtfully so; no note of the state of the nerve is made in 3 others. The condition of the optic nerves in these cases was healthy in 2, and perhaps in

2 more, with invasion in 28, and probably in 5 more, while no note is made of 10 others. The recurrences occurred soon after the operations; of these there were 29, 27 in the orbit, 1 in the forehead and 1 intracranial. Taking the 36 living cases, of which 34 may be called recoveries, only 6 were in the extraocular stage, and in each case the optic nerve was invaded. In none of these cases was there recurrence. In the fatal cases, the disease in one or both eyes was in the extraocular stage, while of the successful ones only one was in the extraocular stage. In the binocular cases there were 13, of which 7 have proved fatal, while 6 are in the list of recoveries. In these binocular cases the second eye is affected as a second focus, and is not a growth secondary to the first, as is presumably shown in the average of the length of life being over three years, that in 5 cases being over four years. Jessop fails to find the record of any case of glioma which has undergone spontaneous cure without treatment, but it is amply proven that all cases when left to themselves are fatal. This surgeon therefore urgently insists that an eye ought never to be excised for glioma without taking as much of the nerve as possible, at least 12 to 15 mm. In conclusion, he points out that in the extraocular stage it is seldom that any operative procedure can save the patient's life, while, on the contrary, he thinks that all of the intraocular cases have been successful. The points on which information is especially needed are the exact division of cases into intraocular and extraocular, the complete microscopic report of the optic nerve, and the length of the nerve removed during the operation. As no disease is more malignant in its effects after it has escaped from the eyeball, it is our duty to remove the eyeball at once while it is still intraocular, and to remove a large portion of the nerve, for, as far as life is concerned, the disease is then only benign.

BURTON CHANCE, 1405 Locust Street, Philadelphia.

April 14, 1904.

Abstracts of Recent Ophthalmic Literature.

EDWARD A. STEWART, M.D.

PHILADELPHIA.

Tuberculosis of the Lachrymal Passages. A. Poulard (*Archives d'Ophthalmologie*, December, 1904), first gives three clinical forms of tuberculosis of the lachrymal passages: 1, A tuberculosis rapid in evolution, with marked involvement of the submaxillary and retromaxillary glands; 2, tuberculosis slow in evolution with moderate glandular involvement; 3, tuberculosis without adenitis. During the course of the slow evolution of tuberculosis of the lachrymal passages, secondary affections of the sac may appear, which are accompanied by adenopathies. In three patients seen by Poulard, there were lesions at the same time of the nasal fossæ and lachrymal passages. These facts show the necessity of examining the nose in patients who show lesions of the lachrymal passages.

Leftsided Homonymous Hemianopsia After Carbonic Acid Gas Poisoning.—Enslin (*Klin. Monatsbl. f. Augenheilk.*, January, 1904) reports a case of carbonic acid gas poisoning, in which he discovered left-sided hemianopsia for colors, the right fields being entirely normal. In the left-eye the boundaries for white were normal, but in the right there was a sector-shaped defect of 60 degrees extending inward to the fixation point. The accident had occurred five months before, and the nature of the poisoning had been determined by the discovery of carbondioxid hemoglobin in the blood by spectroscopic examination. An additional fact of interest was that the patient at first apparently had had disturbances of her visual memory. She was unable to find her way home, and was confused in her sister's house, with which she was well acquainted. Enslin believes the lesion was hemorrhagic and situated in the cortex. There was no disturbance of motion or sensation, such as would be present in affection of the internal capsule. Isolated hemorrhages into the optic tract are extremely rare, and, in the course of five months, would have caused changes in the eye-ground (absent here) as a result of descending atrophy of the nerve. Moreover, the partial restoration of the field, or a partial freedom from involvement, as here in the left eye for white objects, could be explained only as the result of a cortical lesion. A similar case was reported by Purtscher in 1900.

Removal of Corneal Scars by Scraping Johan Holmström (*Klin. Monatsbl. f. Augenheilk.*, January, 1904) advises the scraping of corneal macules, where they are superficial and show irregular, uneven surfaces, which often interfere more with vision than comparatively dense scars which have smooth surfaces. The surface of the cornea is scraped with a small, sharp spoon until it is freed from the opacities and appears even. The surface is usually covered with epithelium within forty-eight hours, and the initial irritation soon subsides. A new opacity appears, of course, and this must be treated for a long time with warm applications, massage with salves, etc., so that the cornea may clear up and be as smooth as possible. He has operated in this way in about 20 cases, and believes the method should be retained for certain cases, in which good results can not be obtained by other treatment.

Antisclerosin.—This name has been given to a combination of drugs prepared by the firm of Wilhelm Natterer, in Munich, for the purpose of lowering vascular tension, and thus having a favorable influence upon arteriosclerosis, following the experiments of Trunccek, which were confirmed by Tessier, Levy and Merklen. The salts were first introduced subcutaneously, but are now given in tablet form. Each dose (2 tablets) contains:

Sodium chlorid, 0.77.

Sodium sulphate, 0.08.

Glycerophosphate of lime.

Magnes. phosphate.

Sodium carbonate, of each 0.03.

Sodium phosphate, 0.025.

Two tablets correspond to at least 15 c.c. of fluid serum (Trunccek), and to the saline strength of about 150 c.c. of blood serum. Two to four tablets are given once or twice daily, and they are indicated especially as a prophylactic measure. (*Rev. in Woch. f. Ther. u. Hyg. des Auges*, January 1, 1904.)

The Ultimate Results of Iridectomy for Primary Glaucoma.—G. Wygodsky (*Westnik Oftalmologic*, 1903, rev. in *Wochenschr., f. Ther. u. Hyg. des Auges*, January 8, 1904) observed 1,245 cases of glaucoma in 61,085 eye patients. In 458 eyes, iridectomy was performed, not including those affected by absolute or hemorrhagic glaucoma. The results were followed for more than two years in 315 cases, of which 37 were cases of acute inflammatory glaucoma, 148 of chronic inflammatory and 130 of simple glaucoma. The author comes to the following conclusions, based

on this rich experience. Iridectomy is indicated in all stages of the inflammatory forms, as it is possible to obtain a favorable result even in a late stage; the prognosis is better the earlier the operation is performed, and is more favorable in the prodromal stages, because no anatomic changes have become established in the eye. A good prognosis is also offered in acute inflammatory glaucoma, as the visual disturbances are produced in this case by the great cloudiness of the media, and the ischemia of the retina; iridectomy reduces the intraocular tension to normal, and in this way removes these conditions. The prognosis is less good in chronic inflammatory glaucoma, and is better the less the visual disturbance is based upon anatomic changes in the optic nerve, i. e., the earlier the operation. In typical simple glaucoma the prognosis is bad; hence Wygodsky recommends iridectomy only in cases with well-marked increase of intraocular tension, when the central vision is still good, and in the absence of decided contraction of the visual field. Sclerotomy and secondary iridectomy improve the results of the primary iridectomy. Treatment with myotics alone is insufficient, and only to be employed when operative interference for some reason is contraindicated.

Blindness from Scurvy.—Axenfeld (*Münch. med. Woch.*, 1904, 1. Rev. in *Wochenschr. f. Ther. u. Hyg. des Auges*, January 21, 1904) reports a case of bilateral blindness, with optic nerve atrophy due to scurvy. The patient had a typical, severe form of scurvy, with numerous petechiæ, high-grade gingivitis, anemia and occasional slight fever. There was distinct but not complete atrophy of the nerves, so that especially severe retrobulbar neuritis was diagnosed. The retina showed remains of hemorrhages, and the vessels were moderately contracted. The cause of the reduction in vision is hard to explain, as there was no decided loss of blood; either toxic affection of the optic nerve must have been present, or perhaps hemorrhage into the nerve sheath. Retinal hemorrhages, xerosis and hemeralopia have been described in scurvy, and in severe septic conditions corneal suppuration and metastatic ophthalmia, but not blindness from optic atrophy.

Infectious Conjunctivitis of Parinaud.—Chaillous (*Ann. d'Oculistique*, January, 1904), adds the clinical history of five cases of Parinaud's conjunctivitis to those already reported, and gives the results of the histologic examination by Morax and Manouëlian in two of them. His conclusions are as follows: There exists a conjunctival affection, characterized by vegetations of the color of a raspberry, of variable form and size, usually unilateral. With these

vegetations erosions or ulcerations may be present. The conjunctival lesion is always accompanied by preauricular and cervical adenopathies. This adenopathy is not always suppurative, but is of considerable volume, tender on pressure and spontaneously painful. Both lesions progress slowly to a cure, and the adenopathy may remain longer than the conjunctival disease. The clinical characters of this conjunctivitis have many points in common with those of tuberculosis of the conjunctiva. The results of histologic examinations and experimental inoculations prove that the two affections are not identical, and that these examinations are necessary to differentiate them. The absence of induration of the conjunctival lesion, the suppuration of the enlarged glands and the absence of any subsequent eruption differentiate it from syphilis of the conjunctiva.

New Researches Upon the Ocular Stigmata in Criminals. Examination of Prisoners in the Prison at Nîmes.—H. Truc, E. Delord and P. Chavernac (*Ann. d'Oculistique*, January, 1904) think that the stigmata of degeneration in hereditary criminals, which have been described by Lombroso and his pupils, must be accepted with some reserve. They have examined 566 male prisoners in the prison at Nîmes, and have come to the conclusion that the visual acuity, visual field and chromatopsia in the criminals do not present any especial peculiarity. The ocular lesions observed do not offer anything especial, and, in fact, appreciable stigmata of criminality do not exist.

Ocular Tuberculosis. Results of the Excision of a Tubercle of the Iris.—Terson, Sr. (*Ann. d'Oculistique*, February, 1904), gives the history in a case of solitary tubercle of the iris, in which he had excised the growth, fourteen years before. There had been no recurrence, and the eye was able to distinguish fingers and large objects. The condition was proved to be tubercular by histologic examination and experimental inoculation. The general health of the patient remained good, and Terson believes the enucleation would have been a mutilation, not only unnecessary, but to a certain degree culpable. He considers that enucleation is not justifiable, especially in children, in the presence only of ocular tuberculosis, even when it is experimentally demonstrated, and that it is useless when the patient is already manifestly affected with a general infection, and may even hasten the end in some cases. Temporizing and general treatment should stop when there is an evident aggravation, shown by gradual diminution in vision. Under these conditions he advises a conservative operation in the cases

of solitary tubercle, which will suffice, in a certain as yet undetermined number of cases, in arresting the local infection, without producing greater danger of general infection than if enucleation were performed. He recommends also the use of Gourfein's method of inoculating animals' eyes with the aqueous from the eye affected, in order to determine the diagnosis early.

Ocular Lesions Caused by Lightning Stroke. Gonin (*Ann. d'Oculistique*, February, 1904) gives the account of a patient struck by lightning, who showed superficial opacities of the cornea, swelling of the face and ciliary injection. Four days after the accident a posterior opacity appeared in the left lens, which showed a tendency to disappear, at the end of several weeks, when opacities developed in the anterior cortex of the right lens. Both optic nerves were partially atrophic, vision being reduced to one-third in the right and one-sixth in the left. He collects the literature of 22 cases, in 19 of which cataract appeared; in 8 cases there was atrophy of the optic nerve, but only 2 in which the lens was not injured at the same time. The atrophy is usually unilateral, and is a late complication, coming several weeks or months after the accident. The disturbance of the lens is usually accompanied or preceded by more or less fugitive lesions of the superficial parts, lids, conjunctiva and cornea. Almost all the observations show a conjunctival hyperemia, with a certain degree of photophobia or blepharospasm, burns of the eyelashes, swelling of the lids and corneal opacity. The corneal opacity often disappears in a short time. Hyperemia of the iris, and even recurring iridochylitis, have been seen occasionally, and in a few cases motor paralyses, involving the third, fourth or sixth cranial nerves. The motor disturbances are usually cured in a few days or weeks. As a result of experiments upon animals, made by Hess, Widmark, Silvast, Keribuchi and others, he concludes:

1. The ocular lesions caused by the direct action of electrical discharge upon the tissues of the eye, differ from those which result only from the effect of the light from an electric flash or spark.

2. In the great majority of cases the sole symptom common to them consists in the conjunctival hyperemia and the ciliary injection; the diffuse opacity of the cornea, the cataract, the severe lesions of the fundus and the motor paralyses are the consequences of the electrocution.

3. The lesions resulting from the electrical discharge may be ascribed to a mechanical action of the current upon the integrity of the histologic elements and upon the cohesion of the ocular tis-

sues, as well as to electro-chemical phenomena developed by the current.

Metastatic Ophthalmia Complicating a Case of Cancer of the Esophagus. Onfray (*Archives d'Ophth.*, January, 1904) reports from Lapersonne's clinic a case of metastatic ophthalmia occurring in a patient suffering from cancer of the esophagus. The bacteriologic examination showed the presence of numerous streptococci and an anaerobic bacillus. In the absence of a general septicopyemia, the condition was considered as due to an isolated embolus. This arose probably from a thrombosis of one of the veins of the esophagus, or of one of the veins of the posterior mediastinum, which communicate directly with the pulmonary veins in the adult. From this point it was carried to the heart, and through the carotid and ophthalmic arteries, to the eye, lodging in one of the posterior ciliary arteries, which are the usual points affected in metastatic carcinomas of the uveal tract.

Notes and News.

ITEMS for this department should be sent to Dr. B. E. Fryer, 520 East Ninth Street, Kansas City, Mo.

DR. JOHN T. OLDFIELD, formerly of Lexington, Ky., has moved to Los Angeles, Cal.

DR. M. URIBE TRONCOSO of the City of Mexico has been recently elected president of the Mexican Ophthalmological Society.

DRS. MARK D. STEVENSON and JAMES G. GUANT have been elected ophthalmic surgeons to the Akron City Hospital of Akron, Ohio.

DR. JOHN A. HILL has been appointed surgeon in charge of the eye, ear, nose and throat department of the Harlem (New York) Dispensary, in place of Dr. Edward Fridenberg, deceased.

JOHN PAUL DOMBROWSKI, M.D., University of Berlin, Germany, 1880, a member of the American Medical Association, one of the most prominent specialists on diseases of the eye in central Illinois, died at his home in Peoria, March 28, from pneumonia, after an illness of ten days, aged 47.

DR. A. E. BULSON, JR., Fort Wayne, Ind., secretary of the section of Ophthalmology of the American Medical Association, has received word that Dr. A. Maitland Ramsay of Glasgow, Scotland, will be a guest of the section at the coming meeting in June, and will give an address on "The Importance of General Therapeutics in the Treatment of Ocular Diseases."

At a recent meeting of the stockholders of the Chicago Eye, Ear, Nose and Throat College the following directors for the ensuing year were elected: Drs. W. A. Fisher, A. G. Wipperf, H. W. Woodruff, Thomas Faith and J. R. Hoffman. At the meeting of the directors the following officers were elected: Dr. W. A. Fisher, president and treasurer; Dr. A. G. Wipperf, vice-president; Dr. J. R. Hoffman, secretary.

THE TRI-STATE MEDICAL SOCIETY OF IOWA, ILLINOIS AND MISSOURI will meet in St. Louis, June 15, 16 and 17. An interest-

ing program is being prepared, and some of the most distinguished physicians and surgeons of the country will attend the meeting. The president is Dr. W. B. La Foe, Ottumwa, Iowa, and Dr. Louis E. Schmidt, 1003 Schiller Building, Chicago, is the secretary. Dr. James Moores Ball, 3509 Franklin Avenue, St. Louis, chairman of the committee of arrangements.

RACIAL EXHIBIT.—Bacteria and zoöus will form the interesting exhibit of Dr. M. Miyajima, a noted Japanese scientist, at the World's Fair. The specimens which Dr. Miyajima will exhibit were collected by Prof. Shibasaburo Kitasato, the well-known scientist of Japan. Dr. Miyajima is an instructor in the Imperial Hygienic Institute of Japan and a personal friend of Kitasato.—*New York M. N. Record.*

DECREASING NUMBERS OF BLIND PERSONS IN PRUSSIA. The proportion of the blind to 100,000 inhabitants has fallen from 92.09 in 1871 to 61.95 in 1900. Out of a total number 4,932 were blind from early childhood, 15,183 became blind later, and the history was not known of 1,181 others. Nearly 5,000 are engaged in some occupation, including 1,275 employed on farms or in gardens and 1,263 in wood-working. The number of deaf mutes has slightly increased, although the proportion to populace is a trifle less. More than half are self-supporting, 6,281 in farming and 5,387 in the clothing and cleaning industries. The number of blind mutes has diminished from a total of 288 to 215. *Journal of the American Medical Association.*

TO PHOTOGRAPH BACKGROUND OF THE HUMAN EYE. According to a German exchange, the assistant of the University Clinic of the Royal Charity Hospital, Dr. Walther Thorner, has succeeded in solving a problem which had received much attention from many others before him, but with little or no success. He has managed to photograph the background of the eye and obtain good pictures of it, too. His invention represents a material improvement on the ophthalmoscope invented by Helmholtz in 1850. The latter, however, only admitted of viewing the background of the eye. The fact that all attempts to photograph the interior of the background of the eye had remained fruitless so far, was due to the peculiar construction of the eye. It is difficult to light up the interior to such an extent as to enable one to take a photograph of it, and even in the use of strong sources of light the exposure would

require so much time that the eye would have to be fixed, which would mean great inconvenience to the patient. Now Dr. Thorner has constructed an apparatus with which he first succeeded in photographing the eyes of animals, especially cats.—*American Medicine*.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.—Section on Ophthalmology. At a stated meeting of the section, held March 15, the following papers were read, abstracts of which will be published later: Dr. Charles A. Oliver, Clinical and Histologic Study of the Ophthalmic Conditions in a Case of Cerebral Neoplasm Occurring in a Subject with Renal Disease; Dr. C. A. Veasey, Report of a Case of Spring Conjunctivitis Resembling Malignant Growth of the Limbus; Dr. William Campbell Posey and Dr. Walton C. Swindells (by invitation), A Case of Graves' Disease, Exhibiting Unilateral Exophthalmos; Dr. S. D. Risley, One Danger from the Use of Powerful Magnets in the Extraction of Metallic Fragments from the Vitreous Chamber, an illustrated case; Dr. H. F. Hansell, Removal from the Orbit of a Bullet Localized by the X-Rays.—*New York and Philadelphia Medical Journal*.

APPROACHING INTERNATIONAL CONGRESS OF OPHTHALMOLOGY.—The Swiss railways and boat lines offer low special rates to the members of the congress, and the town of Lucerne promises lavish hospitality. Owing to the death of Professor Pflüger, the committee of organization now comprises Snellen of Utrecht, Barde of Geneva, Unilateral Exophthalmos; Dr. S. D. Risley, One Danger from the with Mellinger of Basle and Siegrist of Berne. The latter has charge of the exhibition, while the membership fee and all MS. should be sent to Professor Mellinger of Basle. Communications received before May 1 will be printed and distributed to members and discussed at the meetings. Those received after this date will be compelled to await their turn afterward. The printed summaries will be sent to the members with their tickets in receipt for the subscription (\$5). The official opening has been advanced five days, and will be on September 13, instead of 18, as announced in the circulars first received. Accommodations at one of the best hotels at the rate of \$1 a day (including early breakfast), can be secured by application to the chairman of the local committee, Dr. F. Stocker, of Lucerne, not later than September 1. Further information may be obtained from Dr. G. E. de Schweinitz, 1401 Locust Street, Philadelphia, the official correspondent for the United States.—*Journal of the American Medical Association*.

THE OPHTHALMIC RECORD

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OF OPHTHALMOLOGY

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NEW SERIES

Original Articles.

THE DETERMINATION OF HETEROPHORIA.

SOME OBJECTIONS TO USUAL METHODS; WITH DESCRIPTIONS OF A
TRIAL-CELL TO PREVENT ACCIDENTAL ROTATION OF DISPLAC-
ING PRISMS AND A CONVENIENT LIGHTING APPARATUS
PARTICULARLY ADAPTED TO MADDOX'S ROD-
TEST AT READING DISTANCE.

EDW. H. SCHILD, M.D.

BALTIMORE.

(Illustrated.)

Of the various methods for determining the kind and quantity of heterophoria, those based on the use of prisms or Maddox rod are probably most accurate and generally used. When producing artificial diplopia, by means of displacing prisms, serious errors may creep in and misleading deductions result therefrom unless great care be taken to have the base of the prism accurately placed. Unfortunately, such errors are most likely to occur, and also most important in the tests for hyperphoria, on account of the strong prism required to produce diplopia and the necessity for the exact determination of the state of muscular balance. This objection is practically eliminated by using the double prism, but here again there is very often a strong tendency to fusion of the direct with one of the two false images; furthermore, the line of junction of the two prism bases must be accurately centered before the pupil. Prism tests at best are somewhat tiresome and confusing, and require a certain degree of intelligence on the part of the patient. The Maddox rod is more convenient to use; the true and false images are readily recognized and differentiated even by children; a slight deviation of the streak of light from the horizontal or vertical direction does not matter seriously, since a portion of the streak midway between its ends is compared with the original source of light, and this central portion is but slightly, if at all, displaced;

besides, the test is more rapidly accomplished with the rod than by use of prisms.

In spite of its advantages, the use of the Maddox rod for the determination of heterophoria has been restricted practically to the distance test (20 feet) and in the various text-books (Fuchs, De

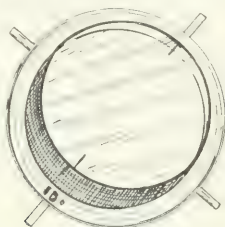


Fig 1

Schweinitz, Savage, Thorington, etc.) is usually so recommended, while for the tests at reading distance, prisms, usually the double prism, are specified. This is no doubt due to the fact that, as a general rule at least, we still adhere to the time-honored candle flame as a source of light and test object; which, fairly accurate for

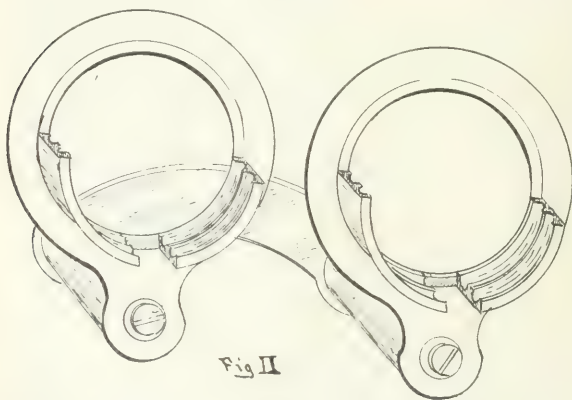


Fig 2

distance, is entirely too crude to be used at a short distance. An average-sized candle will yield a flame about two inches high, so that the horizontal streak (false image of the Maddox rod) may vary considerably and still appear to pass through the image of the flame seen by the other eye; hence a certain amount of hyperphoria

may escape our observation, depending on the judgment of the patient and the distance, or rather nearness, of the candle flame. If the candle and its holder be used as a test object for vertically displaced images, the upper extremity of one image may overlap the lower extremity of the other and give rise to inaccuracies. It would be better to place in front of the light a dark screen provided with a central opening of a size proportionate to the distance, so that the patient can see a distinct bright spot on a dark background. This would furnish a test object of uniform width in all directions, equally adapted for either prisms or rod. The screen should be of ample size (at least 2 feet square for a 20-foot distance) and with-

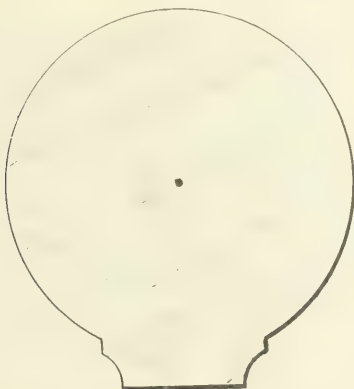
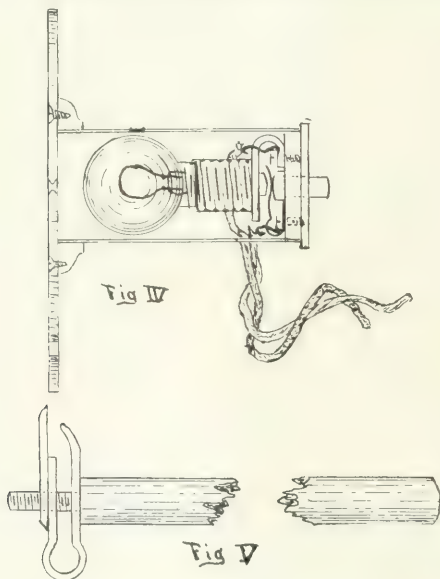


Fig III

out a frame or anything suggestive of a border, so that an overlapping of images may give the impression of a continuous surface.

In order to avoid errors from prisms accidentally rotated, I have found it convenient to have a set of prisms (6° , 10° , double-prism and Maddox-rod), mounted, each in a special cell of the standard size to fit the trial frame. This cell (illustrated in Fig. 1), has no handle, but, instead, is provided with four pegs extending outwardly from the periphery and exactly 90° apart. The trial frame in its stead is provided with a slot just wide enough to readily admit one of the above-mentioned pegs, or else has two shoulders diametrically opposite, on which two opposite pegs may rest when the cell is put in place. Figure 2 shows this latter arrangement. Slot or shoulders must be so situated that the pegs will correspond

to 0° , 90° and 180° on the trial frame. With such an arrangement the prism or Maddox rod cannot become displaced, accidentally or otherwise, during the test; it must always point in the direction intended. I had the trial frame of my wall bracket (usually called optometer in the catalogues) altered to accommodate such cells, by simply filing a wide notch into the semi-circular grooves at their lowermost portion, as shown in Figure 2. When the trial frame is leveled, a prism dropped into the "nest" will project the image in a truly vertical or horizontal direction.



That the Maddox rod-test may be made available for reading distance, I have devised and use daily a simple arrangement, based on the principle of the above-mentioned screen, which I will endeavor to describe. This apparatus consists of a round, flat shield of thin, hard rubber (Fig. 3), about $2\frac{1}{2}$ inches in diameter, provided with a central "pin-hole" opening, which should be counter-sunk on both sides, so that the margin of the hole may be quite thin. Immediately back of this opening is a small electric lamp (see Fig. 4) of the kind used in electric ophthalmoscopes. This

lamp is enclosed in a tube, preferably of metal, one end of which is attached to the above-mentioned shield, the other end being closed by a cap provided with a socket to hold the lamp and also with a small push-button to close the electric circuit and light the lamp. A small (5 mm.) opening or sight-hole is put into the tube immediately over the film, so that the surgeon, from his position, can observe the proper lighting of the lamp. The shield has a short projection beyond the circumference, by means of which the device can be held in the clip usually attached to phorometers and intended to hold a test card;—or whereby it can be clamped in a special holder (Fig. 5) adapted to the purpose and held by hand. By means of the holder the apparatus can be held steady, at reading distance,



Figure VI.

with the pin-hole properly placed. A silk-covered double conducting cord conveys the current from a battery box or convenient place on the wall. Three ordinary dry cells furnish requisite current, or street current, properly reduced, may be used.

The method of using the device is quite simple. The trial frame is placed on the patient's face, with the Maddox rod before one eye; the other eye may be provided with some form of rotary prism in the usual manner. The electrical connections having been made, the surgeon holds the apparatus by one hand, with the thumb resting gently on the push-button, while his other hand is left free to manipulate the correcting prism. In order to obtain a bright and distinct false image, it is, of course, essential to have lamp-film.

pin-hole, rod and pupil of patient's eye in a straight line, so that the direct rays may fall on the Maddox rod. This is readily accomplished by resting the free end of the holder against the face of the patient, so that the rod or stick shall be in a line approximately parallel to an imaginary line drawn from pin-hole to pupil. The canine fossa of the corresponding side of the patient's face about conforms to this situation with the average adult (see Fig. 6). The surgeon now presses the push-button and directs the patient's attention to the streak and point of light (in the pin-hole opening), at the same time observing for himself, by means of the sight-hole, whether the lamp lights. By alternately pressing and relaxing the button, the streak may be made to appear and disappear several times, thus more forcibly attracting the attention of the patient, should he be slow to respond. If one desires to use the pin-hole light in connection with the Stevens phorometer, and such use is recommended, the holder may be dispensed with if the phorometer has a projecting arm provided with a clip. The pin-hole must then be properly adjusted, once and for all time, by shifting the shield in the clip until the best results are obtained, after which it is not removed from the clip, the arm being simply swung to one side after use.

This little device, used in connection with the Maddox rod, will readily disclose a hyperphoria of $\frac{1}{4}^{\circ}$. When testing the lateral muscles it may be necessary to encourage the patient to stimulate his accommodation by asking him whether "the dot of light is round or star-shaped," etc. The light may also be used for near tests without the Maddox rod, in conjunction with prisms, in the same manner that the candle flame or large screen is used for distance tests.

The above apparatus, properly made, may be obtained of Messrs. C. A. Enker & Co., 312 N. Howard street, Baltimore.

MR. WORTH'S OPINION OF MUSCLE TRAINING.

DAVID W. WELLS, M.D.

BOSTON, MASS.

Since the appearance of Mr. Worth's book, "Squint," I have expected some reviewer would criticize his statement about the uselessness of exercises in heterophoria. He certainly has made a great contribution to ophthalmology in his treatment of squint, but I feel constrained to enter a protest against some statements concerning muscle training. He says on page 192: "Rhythmic exercises with prisms, cylinder, etc., are much employed in America in

cases of heterophoria. I have tried them repeatedly, but have never seen the slightest benefit from them." Page 198: "If a patient has orthophoria in distant vision and exophoria in near, or if there is more exophoria or less esophoria in near than in distant vision, he has insufficiency of dynamic convergence. In an uncomplicated case of insufficiency of convergence exercises should be tried."

"The following simple plan is as good as any: The patient begins reading a book at the ordinary distance; then, while still reading, he gradually brings the book nearer his eyes until the print begins to be blurred. He then slowly removes the book to the ordinary reading distance. This is repeated; at about every tenth line he looks into the distance for a moment in order to completely relax his convergence. Two or three pages should be read in this way twice a day, for two or three weeks. These rhythmic exercises, of course, do not increase the power of the ocular muscles (any more than voice training increases the laryngeal muscles), so they do not in the least diminish the exophoria in distant vision. But they often much improve the power of dynamic convergence by teaching the nervous apparatus to respond more readily to the will."

This plan violates the two principles on which success depends. The patient "brings the book nearer to his eyes until the print begins to be blurred." What better method could be adopted to invite a suppression of one eye? The ciliary is being strained to its utmost, in most cases probably much more than the convergence. This is more faulty than Gould's plan of putting prisms base out before the patient, through which he fixed a candle at close range. This is carried off, or the patient backs away, until diplopia results. Both these plans secure convergence through association with accommodation. In the condition cited it is the convergence, not the accommodation, which is weak.

When the co-ordinated impulse to converge and accommodate is given, the converging muscles do not easily turn the eyes until the visual axes meet at the distance for which each eye is focused. The logical correction is to disassociate these two functions to put the accommodation at rest—either by fixing a distant object or with convex lenses equal to the distance fixed, e. g., +10 in the phoro-optometer stereoscope, in which the card is at 10 c.m. distance. This done, the internal recti should be exercised with prisms, care being taken that the patient does not allow one eye to diverge, the image being suppressed and diplopia not noticed. This possibility is absolutely guarded against, and the prismatic element easily varied by using the phoro-optometer stereoscope, with its two

cretès prisms. Charts should be used in which the fused image is a composite picture, so that the suppression of either eye is at once apparent. The decentering of the two $+10$ lenses is a very subtle means of securing a prismatic effect of about 1° for each mm. decenteration.

The loose prism method should be used just as soon as the patient can be trusted not to suppress one eye. The stereoscope is his teacher, with whose help he may fuse five times as much as without, and of this help he should learn to be independent.

The amount of the heterophoria is recorded both before and after each treatment, and, unless a decided difference is shown, exercises are discontinued. While it is true that we frequently develop a good and sufficient adducting power without reducing the exophoria at a distance, yet in looking over my records I find a great many cases of absolute cure of distant exophoria. This is not only with medium degrees, but cases showing 15° to 20° distant exophoria have been transformed into orthophoria, or even slight esophoria. We are "using rhythmic exercises in America" because we are getting results. Is it not quite possible that Mr. Worth's failure may be due to his evidently faulty methods? It seems unaccountable that one who has announced so strenuously that "the one essential cause of squint is a defective development of the fusion faculty" should absolutely ignore the same causative factor in heterophoria as in heterotropia.

A CASE OF EXOPHTHALMUS OF THE LEFT EYE, OF OBSCURE ORIGIN.

RECOVERY AFTER THREE MONTHS' DURATION.*

EDWARD SWASEY, M.D.

Ophthalmic and Aural Surgeon, Worcester City Hospital,
WORCESTER, MASS.

I first saw this patient on April 7, 1903. She was a well-nourished, healthy-looking young woman, 24 years old. About two years previous to this visit she had two or three slight nervous attacks, with some spasm, which, I judge, were hysterical rather than epileptic in character. At least she has had none for some two years. Aside from these, she has had good health and shows no signs or gives no history of any constitutional disease. Her family history shows a healthy father and mother, except that the latter is very myopic. Her elder sister died from dropsy, which I infer was due to Bright's disease. A younger sister, sick from the previ-

*Read at the New England Ophthalmological Society.

ous April till August following, and died from pulmonary tuberculosis. A maternal aunt is blind from optic nerve atrophy, which I have learned by personal examination with the ophthalmoscope. It came on without any known cause when she was past 60, and was slowly progressive.

My patient has not been exposed over-much to inclement weather or overwork, for she has lived at home for two years. Her present trouble began one month previous to my seeing her. She went to the depot to meet a friend, and while there she suddenly began to see double. She consulted an oculist the same day and he told her the rectus externus muscle of the left eye was paralyzed, she having a convergent strabismus in the left. These conditions of diplopia, convergence, dizziness and some headache had remained up to her visit to me. The eyes appear normal externally, but the convergence is well marked, and she can not rotate the eye outward beyond the median line. I can get no satisfactory test with the prisms, but, approximately, it takes 10° to overcome the inversion. There is no exophthalmus at this time. Media clear and retina healthy in each eye. She has vision of 20/30 in the right and 20/40 in the left.

Correcting a dioptry of astigmatism in each eye, and adding a $+1.25$ sph. to the right and $+1.50$ sph. to the left, she gets normal vision in right and nearly so in the left. She was advised to try these for a few days to see if they would give some relief to her dull headache, before prisms were resorted to to overcome the diplopia. After a day or two she reported some slight relief to the head. She then disappeared, and it was two months before I saw her again. She then had a decided exophthalmus in the left eye, and I was quite startled at the change which this made in her appearance. It made its appearance one week previous, and was first noticed by a friend, who asked her why her eye was bulging forward. This steadily increased. There was no pain in or about the eyes, no congestion of conjunctiva or lids, and no discoloration. I could discover no tumor in the socket, and the eye could be partially returned to the socket under gentle pressure and without special pain. There was some plus tension, but the eye-ball was not hard.

Examination by the ophthalmoscope showed the retina undisturbed by any pressure from behind. There was, however, a well-marked neuro-retinitis, with prominence of the disk, blurred outline, larger veins and congestion of the retina. A cluster of bright white spots surrounded the macula region, giving a typical picture of albuminuric retinitis. I could find no hemorrhages in the retina. She was blind in this eye and could not locate a bright light.

Examination showed nothing wrong with the kidneys. The heart and thyroid gland were normal. She had been suffering from quite severe headache for the past week, more in the occipital region, and especially the left side, behind. She could still turn the eye-ball to the median line, but not beyond.

A few days before this visit she had by accident discovered that she was blind in the left eye. The pupil was enlarged and non-responsive to light. I put her on the iodid of potassa, 30 grains a day, to be increased if stomach would tolerate more. But 45 grains were the limit of her toleration. She was given mercurial inunctions to use at night, also some headache powders and bromid of potash. In a few days her headaches were removed. The face of the optic nerve gradually cleared of its congestion, and the blurred outline became more defined and sharper. But it went through the usual changes to complete white atrophy.

The macula region has for many weeks now assumed more the natural appearance, and the white spots have given place more to a faint motteling and small rings of faint pigmentation. The exophthalmus has completely disappeared, and this, too, since late in the autumn. The eye moves fully over the normal area, and in appearance is normal. When she fixes close at hand there is slight convergence, but ordinarily the eye is straight.

I also made use of electricity in the form of the faradic current for the purpose of trying to restore the action of the externus, to help absorption of whatever was in the socket, pushing the eye forward, and also to keep watch of changes going on in the retina and nerve. I was influenced to try electricity by remembering to have read some remarks of Knapp of New York on orbital tumors.

In the Ophthalmological Section of the American Medical Association at Detroit, in June, 1892, Dr. G. E. Frothingham gave the history of "A case of rare form of orbital tumor." Dr. Knapp discussed the case, and, whether it has any bearing on this case or not, it is always interesting and instructive to hear what Dr. Knapp has to say on any subject in ophthalmology. He said: "I beg to make some remarks especially in reference to the paper of Dr. Frothingham. I wish to point out the difficulty in diagnosis in some of these cases, as on three occasions I have fallen into a great mistake. Some of these tumors are benign, although they present the features of malignancy. I remember three cases of this kind. The first was an individual about 20 years of age, with a tumor situated deeply in the orbit, producing exophthalmus. It was supposed to be a sarcoma, and yet it completely disappeared.

"In the second case there was considerable exophthalmus from large growths in different parts of the orbit. The eye was taken out by one of the surgeons of the Manhattan Eye and Ear Hospital, and the tumor cleanly removed. On microscopic examination it proved to be a small-celled sarcoma. The patient came to me two years later with the same condition in the other eye. There was great protrusion of the eye and solid masses were distinctly felt in the orbit. I could not advise the woman to have the eye removed, and I was not sure that otherwise the radical removal of these tumors could be accomplished. She was under general treatment, and three or four months afterward I heard that she was better and that the tumors greatly diminished in size. After fifteen months she again came to me and was perfectly cured. The growths and the exophthalmus had disappeared without leaving a trace, and without any injury to the functions of the eye. Another case was sent to me last year by Dr. Morgan of Springfield, Mass. The tumor had sprung from the inner side of the orbit and seemed to be connected with the periosteum. It looked like a periosteal sarcoma. Dr. Morgan removed the growth, and the microscope showed it was a sarcoma. The patient had similar growths in the nasal passages of the same side. It seemed to be a case of sarcomatous growths of the nasal passages protruding into the orbital cavity. After removal by Dr. Morgan there was a rapid relapse. In several months the growth was as large as before. The tumor seemed to go into the wall of the orbit so deeply that I did not think any operation could be done with benefit. The orbital small-celled sarcomata are as malignant as any tumor can be. The patient after leaving me went to an electrician and also took some indifferent remedies. She perfectly recovered. She said the improvement began after being under the electric treatment for four or six weeks, and had steadily continued. Not long ago she presented herself to me, and there was no trace of the trouble left. The orbit was normal and the nasal passages were free. She came to express her gratitude that I had advised her not to be operated on. What are these growths that come under the mask of sarcoma, and evidently are not malignant? They are not fibromata, for they do not disappear. The only thing I can imagine is that they are lymphomata. In the first case the diagnosis of lymphoma was not difficult, because there were swellings in other parts. It was a symptom of Hodgkin's disease. In the other two cases there was nothing to lead me to such a diagnosis. The disease was purely local. The histology of the tumor was in all the same, a small-celled tumor with more or less fibrous tissue.

When I see such a tumor, if I am sure it is not in connection with the orbital walls, I hesitate to advise its immediate removal. If it progresses, there is nothing else to be done. If the tumors are multiple and malignant we can not do any good. If there is such doubt, and I think the doubt can not be entirely excluded, I would rather wait before committing myself to the removal of the eye or tumor."

Not having a very clear idea then, and I am no more clear on the subject now, of what was the cause of this projecting eye, I thought it would do no harm, at least, to add the electric current to the medication. Whether it did any good to hasten absorption I do not know, but I can not refuse to believe it was a strong factor in restoring the normal power to the external rectus muscle, for this muscle had been powerless to bring the eye beyond the median line for some three months before the exophthalmus appeared. I gave the current as strong as the patient could comfortably bear it, placing one pole just back of the external canthus and the other pole low down on the opposite side of the neck. It was given every other day at first, then twice a week for three months. So long as some exophthalmus existed and seemed to be improving, and likewise the muscular power, I kept up the electric treatment, and the result has been the disappearance of all deformity, the restoration of all functions, except that of sight.

Whatever the nature of this process in the orbit, whether a simple optic nerve tumor or something else, it was severe enough to make pressure on the congestion of the optic nerve, and subsequent atrophy, and to keep up an exophthalmus for some three months.

A NEW OPERATIVE PROCEDURE FOR CORRECTION OF BADLY-PLACED CANALICULAR CUTS.

WALTER HAMILTON SNYDER, M.D.

TOLEDO, OHIO.

R., T., age 16, male. Consulted me in November, 1900, and gave following history: "For two years has been troubled with tears running over lids; left eye the most. He had been operated on a year ago, the canaliculi having been slit up and probed until the present time. He says his condition is not improved, as the slightest cold wind causes an overflow." The present condition is: Vision, 20/20 in each eye; a chronic conjunctivitis and the cut in the lower lids being so badly placed, especially in right eye, that the inner lip was not in contact with globe, and the tears had to overflow before they could reach the opening: then the slightest movement of the globe

or lids, and the tears would fall on his cheek. Examination of the nose showed nothing to obstruct the flow, and the trouble seemed mostly mechanical. Not wishing to operate in the winter, although I believe now it would make no difference, I treated his eyes by syringing and flushing until spring, and on May 15, 1901, under general anesthesia, I freshened the edges of the slit canaliculi, sewed them together and cut a new opening which ran in an oblique direction to the sac, endeavoring to have both lips, so far as possible, in contact with the globe. Two days later the stitches were removed and the adhesion found to be permanent. The new cut was kept open, and two weeks later solution would run through the duct without first overflowing. Three years later I saw the patient, who is collector for a livery company and is out of doors constantly, and has even abandoned the use of eyewash given for constant use. Says that practically he has no trouble. I have not found any mention of attempts to correct a badly-placed cut, and in my experience many are badly placed. I am nearly always disappointed in the results after slitting the canaliculi and do it only as a last resort, preferring to spend many weeks in treatment of nose and syringing the duct and sac. When I do the operation I try to get the cut in the conjunctiva and aim to have both lips in contact with the globe as much as possible. So placed, many will drain surprisingly well. I believe many patients with badly-placed slits could be operated on and with what to them would be perfectly satisfactory results, although they will overflow at times.

211 Ontario Street.

TRANSIENT MONOCULAR BLINDNESS.

FUNDUS VIEWED DURING COMPLETE COURSE FROM ONSET TO RECOVERY.

T. H. JAMIESON, M.D.

WELLINGTON, KAN.

Mr. H., American, laborer, aged 84, consulted me March 29 because of short spells of blindness in right eye.

History.—No blindness in family, no former trouble in eye, no pain or other symptom in eyes. For a man of age, apparently in splendid health. Some ten days ago noticed objects getting dark before right eye and finally fading to nothing, and on closing left eye could see nothing. Periods lasted, he thought, for five minutes. Same had recurred once every day, and twice last two days.

Ocular Examination.—O. D. 20/30. O. S. 20/30 without correction. Lids healthy, cornea clear and normal, tension normal.

With Ophthalmoscope.—Find almost normal interior of eye.

Lens and media clear. Optic disk probably showed central artery of retina and its branches fuller than normal. No hemorrhages or other evidence of disease in the fundus.

Physical Examination.—Healthy and strong. Pulse losing one to three beats a minute, strong and bounding. Inquiry revealed that he had been taking a mixture for his kidneys given for his wife, who is a rheumatic. Advised ceasing medicine and to report in four days. Afterward found that he had been taking oil of wintergreen 2 m. and Harlem oil 15 m. three times a day.

Fundus Viewed During an Attack.—April 2, reported he had missed having blind periods for last two days. While viewing the fundus in search of cause, was surprised to see the central artery of retina fade into a mere white line, followed closely by fading of vein and its branches until could not even make out their position. Optic disk became perfectly pale and white, retina pale, but through it could be made out the choroidal vessels radiating in all directions from outer border of optic disk. In probably two minutes' time the central artery became visible, followed by filling of vein and normal condition of fundus of eye. When artery began to fade patient remarked that objects were getting dark before the right eye, and when vein had faded from vision said he could see nothing with right eye. Had him close the left eye, and he said he could not see the light reflected into right eye.

Remarks.—William Campbell Posey,¹ writing on this subject, gives five cases and quotes Loring, Nettleship, Priestly Smith and Wagenmann, saying "all these authors attribute the loss of sight to some disturbance to vascular supply of the eye. Indeed, in the absence of any pathologic findings in the fundus after the attacks of blindness such as have been described, it is natural to impute the loss of vision to some spasmodic affection of the vessels, the spasm not being maintained long enough to cause any permanent change in the tissues." Posey also says that the prognosis is generally good and attacks are not to be dreaded. Still, he quotes two cases in which, after a number of transient attacks, there was a final attack as a result of which vision was permanently lost, and advises a guarded prognosis. He cites a case of "Leber's" which showed all the ophthalmoscopic signs of embolus, but the microscope failed to reveal any evidence of embolism or thrombosis, the blindness and pathologic findings being attributed to long-continued spasm.

Charles H. May, in reviewing Posey's paper,² thinks the blindness

¹ The Journal of the American Medical Association, May 31, 1902.

² Annals of Ophthalmology, July, 1902.

caused by spasm of the walls of the vessels probably due to endarteritis.

Before the Ophthalmological Society of the United Kingdom, G. W. Thompson reports a case which for ten years had transient monocular loss of vision during attacks of severe headache, which ended in blindness, showing obliteration of retinal artery. He thinks endarteritis the cause. Lawford and Batten described a somewhat similar case each and attributed the final blindness to arterial degeneration. Dr. James Taylor, discussing the cases, thought them similar to cases of temporary loss of function of some portion of the brain, which sometimes leads to permanent change.

Liebrecht,³ as a result of numerous examinations says:

"The optic nerve is injured by arterio-sclerosis more often and in a much greater degree than has been hitherto assumed. The injury does not take place in the bony optic canal, because in this position the ophthalmic artery has already entered the dural sheath of the nerve and can no longer exercise any pressure on the nerve."

Injury occurs, first and most frequently, in the fibrous portion of the canal within the skull cavity, where the ophthalmic artery may indent the nerve in a longitudinal direction; second, in the upper sharp border of edge of fibrous canal, against which the nerve may be pressed by the ascending carotid artery; third, is in the middle between the canal and the chiasm, at the point where the carotid and anterior cerebral artery cross above and below the nerve.

Charles Stedman Bull,⁴ writing on arteriosclerosis and its bearing on certain lesions of retina and optic nerve, says: "In some of the cases which have been under my observation for years, with the presence of scotoma and increasing loss of sight, there have been no evidences of arteriosclerosis of the retinal vessels as long as they were under observation until the atrophic process reached the disk. The location of the pressure points would naturally vary with the course and distribution of the vessels in individual cases.

"1. It might be in the prolongation backward of the long optic canal toward the skull, where very often the ophthalmic artery enters the optic nerve in a longitudinal direction.

"2. It might occur near the upper sharp border of the fibrous optic canal, where the optic nerve is broadly pressed on by the ascending carotid. Or, finally, it might occur midway between the fibrous canal and the chiasm, at the point where the carotid and the anterior-cerebral artery cross above and below the optic nerve."

Having given you the opinions of others who have studied the

3. Archiv f. Augenheilk., December, 1901, reviewed in OPTHALMIC RECORD, May, 1902.

4. Annals of Ophthalmology, 1904

condition and its generally-believed underlying cause (arterio-sclerosis), will now consider this case. It is evident the blood current was interrupted some place along its course from heart to retina. The lack of symptoms other than monocular blindness would leave only the ophthalmic artery from internal carotid to retina to be considered.

Further, that the interruption is not in bony optic canal nor until after the short ciliary branches are given off is evidenced by the choroidal arteries being distinctly seen during the absence of blood in the central artery of the retina and its branches, for the ciliary arteries which supply the choroid are given off after the ophthalmic artery leaves the bony canal.

According to "Gray," as the optic nerve passes from the brain it receives sheaths from the three cerebral membranes.

1. A perineural sheath from the pia mater.
2. An intermediate sheath from the arachnoid.
3. An outer sheath from the dura mater.

These sheaths are separated from each other by spaces which communicate with the subdural and subarachnoid spaces respectively. The outer or dural sheath is attached to the periosteum as it passes through the optic foramen. The inner invests the nerve through its length and sends a process around the arteria centralis retinae into the interior of the nerve. Any change of pressure by the subdural or subarachnoid fluids which reached the central artery of retina would be sufficient to cause collapse or spasm of its walls and thus produce blindness for the time.

The pressure in this case was probably arterial from heart stimulant, which gave him the bounding pulse. Some anatomic difference, or structure change, would account for the symptoms showing in only one eye. This opinion is strengthened by the fact that during the next ten days only two attacks of transient blindness were noticed.

The patient's age and his intermittent pulse would indicate degenerative changes in his vessels, which had reached the central artery of the retina but had not yet shown in the fundus.

A CASE OF RETINAL DETACHMENT THAT YIELDED IMMEDIATELY TO TREATMENT.

H. MANNING FISH, M.D.

NEW ORLEANS, LA.

The retina or innermost coat of the eye is not anatomically connected to the chorioid or middle coat; its only place of attachment

is at the posterior part of the eye, where the optic nerve passes through the two outer coats to enter the ball, and at the ora serrata, the peripheral termination of the retina. It is held in apposition to the chorioid merely by the pressure from within of the vitreous humor, consequently the retina occasionally becomes partially detached or separated from the chorioid. A simple figure to make the above plain to any reader would be to imagine an old-fashioned round drinking goblet, into which a toy rubber balloon exactly fitted—that is, completely lined it—and attached only at a point at the bottom of the glass and at the edge, and pressed against it by being filled with water; the water would represent the vitreous, the thin rubber the retina *in situ*, and a chance bubble of air under it would be a “detachment.” Retinal detachment may be caused by injury, stretching of the other two coats, elongation of the eye-ball in high myopia, by shrinking of the vitreous following an inflammation, or by any circulatory disturbance that would cause a sub-retinal hemorrhage or exudate, and so lift it up from the chorioid, and it sometimes arises idiopathically. It is generally very sudden in its appearance, especially when due to subretinal hemorrhage or exudate, the patient noticing a rapid and great loss of vision, either central or in the visual field, according to the location of the lesion. The diagnosis in old cases is a comparatively easy matter; in right fresh ones, due to an exudate, it is more difficult, and, unless the exudate is pronounced, enough so to show a grayish color replacing the normal red of the fundus, and concealing the chorioid and leaving still visible the retinal vessels, resort must be had to the perimeter to determine if there are any scotoma or breaks in the visual field. As the retina is supposed to derive most of its nourishment from the chorioid vessels, a detachment, unless speedily relieved by nature or otherwise, usually results disastrously to that part of the retina immediately involved; not only is there an interference with the nutritive processes, with resultant atrophy, but the exudate may soon become organized, the connective tissue formation effectually preventing a reapposition of the detached part, with a consequent functional loss.

Owing to a rapid deterioration in the retina when detachment of that membrane persists for some time, and as the cause of the detachment in a great many cases is unknown, the treatment is directed principally to the evacuation of the subretinal fluid rather than to the causal disease. The course generally recommended is confinement in bed in dorsal position, with a pressure bandage, sweating, iodids, purgatives, etc., this to be kept up several weeks, and, if unsuccessful, operative measures are to be used, as puncture

of the two outer coats behind the fluid to draw it off and allow the retina to resume its normal position; piercing all three coats to evacuate the fluid and set up an inflammation, hoping thereby that adhesions will form and hold the retina in place; injections of some fluid into the vitreous to increase the pressure within the eye, and so force the retina back into place. The authorities agree in an unfavorable prognosis and do not hope for much from any treatment; the detachment enlarges, there are recurrences, opacities appear in the vitreous; total detachment from shrinking of the vitreous, with ultimate blindness, is the fate of most of these cases. "The prognosis of every case of detached retina is bad, spontaneous cure being extremely rare, and the cures by any one or by any combination of the above methods being few and far between; and when the retina does return to its place there is still the danger of a recurrence of the detachment" (Swanzy¹). Subconjunctival injections of a normal salt solution, first recommended by Lodato in 1895, are advised by Fuchs,² with no comment as to the results. Fox³ says of this treatment that it has been attended by but temporary relief, and Tarducci, whose results from this treatment are reviewed by Wood in December number of THE OPHTHALMIC RECORD, says: "Subconjunctival injections of sodic chlorid do absolutely no good in cases of detachment of the retina of long standing. In recent cases of detachment they cause a slight increase in both central and peripheral acuity of vision, but after three or four days the improvement is lost. On the whole, these injections give no better results than those obtained by the more usual modes of treatment." Darier⁴ reports no improvement in cases of detachment treated by the Röntgen ray. Deutschmann,⁵ who passes a double-edged canula knife through the three coats dividing the striæ in the vitreous and liberating fluid from before and behind the retina, and follows this by injecting the vitreous from rabbits' eyes into the vitreous to force the retina into position, reports cures in 23 to 26 per cent. of cases so treated. At the September (1903) meeting of the German Ophthalmological Society at Heidelberg (see *Archiv für Augenheilkunde*, October number), Uhthoff described a case of bilateral retinal detachment in a nephritic patient treated by inserting a Curschmann's canula in the lower limbs, by which twenty-one liters of exudate fluid were drawn off in the course of a few days. In a month or two reapposition of the retina took place, with but partial

1. Swanzy: Diseases of the Eye.

2. Fuchs: Lehrbuch der Augenheilkunde.

3. Fox: Diseases of the Eye.

4. Darier: Medicinisch-Chirurgisches Centralblatt, Oct. 9, 1903.

5. Deutschmann: Archiv für Augenheilkunde, vol. xlviii, Vierte's number.

restoration of function, owing to the formation of connective tissue bands and pigment spots in the subretinal exudate, as demonstrated by the microscope. His results showed only 8 per cent. of permanent reattachment in about four hundred cases of detached retina, and, as he used the above pathologic findings to explain the ophthalmoscopic changes or appearances in the fundi of these reattached cases, we must infer that the function was not completely restored even in this small percentage of cured cases.

In July, 1903, a lady, 38 years old, came to me complaining of asthenopia. She was wearing .75 D. constant, with which her vision was normal (better than 15/15) in each eye. I did not change her constant glass, but prescribed 1.25 D. for near work, which relieved her symptoms. On March 2, 1904, her husband, a physician, told me that during the night his wife had had a very severe pain in her left eye, that there was a marked loss of vision, etc., and he thought it was an attack of glaucoma. She had had several similar attacks in the last few years, though none had been so severe and her vision had never before been affected. There had been pain and redness, and one oculist had told her the trouble was due to malaria, and a second said she needed her glasses changed, but a little later, after the acute attack had subsided, he told her the glasses did not need changing. The next day, March 3, she called at my office. She was still suffering with pain in her left eye and in the orbital bones; the pain, however, in the ball itself was not as severe as it had been two nights before, when it was very intense, enough to awaken her during the night. There was no increase of tension; the cornea was not "steamy"; the pupils were alike in size, though the left was somewhat sluggish; vision greatly reduced; at fifteen feet on an illuminated test card she could read (with glass) the top letter (CC) and only one on the second line (C), hence her vision equaled 15/C. L., or only 1/10 the normal; plus and minus glasses placed before her .75 D. did not improve her vision; the near point could not be taken, as she could get but glimpses of large type (3^d D.) at 45.—50. cm.; reading it was out of the question. After instilling homatropine I found all the media clear and the fundus normal save in the lower half: beginning just below the macular region and extending well forward, there was a grayish slate-colored exudate, not sharply outlined, but gradually fading away at its borders into the normal red color of the fundus. In front, and extending entirely across this grayish mass, the retinal vessels were plainly visible; they were very distinct with a + 3.50. D. + 4 D. lens in my ophthalmoscope; the chorioidal vessels, however, were entirely concealed by it, though visible at the sides and in front of it (anteri-

only, toward the periphery), plainly an exudate between the retina and chorioid. I did not take the visual field, not considering it necessary to do so for diagnostic purposes, the grayish mass concealing the chorioidal vessels and lifting up the retinal vessels, and the latter being very distinct with a + 4 D. in my ophthalmoscope, determined the diagnosis beyond question. Right eye normal (vision, near point, fundus, etc.). The eye excursions were normal, no edema of the lids or orbital tissues either side. There was some tenderness to tapping over and pressure under the left frontal sinus and the left middle turbinate was swollen. There was no nasal secretion. I told the doctor my diagnosis was a serous exudate between the retina and chorioid; in other words, a retinal detachment, caused by an inflammation of the left frontal sinus. As I had had cases of inflammation of the frontal sinus with resultant edema elsewhere (in the lids and surrounding soft tissues in many cases, subconjunctival or a conjunctivitis in several cases, and in the orbital tissues one case of cellulitis with exophthalmus), and as I had not failed to quickly and completely relieve them by simply draining the cavity, I did not put this patient in bed with a pressure bandage and resort to sweating, medicines, subconjunctival injections, etc., but I anesthetized the middle meatus and probed the frontal sinus. The following day there was no change in symptoms (vision, pain, exudate, etc.), so, after probing the sinus, I inserted a fine silver canula and injected some water into it. The next day the patient reported complete relief from all pain in the eye and orbital bones, and her vision was 15/30. There was considerable yellowish nasal discharge, left side, for past twenty-four hours, and examination showed that it came from the fissura semilunaris or infundibulum, the lower terminus of the fronto-nasal duct. Three days later she called again. The conjunctiva had entirely cleared up, the pupil was normally active, the fundus reflex had its normal red color throughout, the grayish exudate was entirely absorbed, the chorioidal vessels which had been hidden by the exudate were visible, her vision was better than 15/15, and her accommodation range normal. A complete restoration of all eye functions. She has had no trouble to date, now about four weeks, though, of course, the enlarged, unhealthy middle turbinate may become congested and again occlude the fronto-nasal duct and so cause another acute attack. On that account I would advise its removal.

The theory that best accounts for the edema in any part about the orbit, as well as the remaining ocular symptomatology of an inflammation of the accessory sinuses, I consider to be that given by

Ziem,⁶ i. e., a passive orbital hyperemia, which hypothesis is well sustained anatomically by Gurwitsch's⁷ demonstration, that a great part of the venous blood of the mucous membrane of the nose and of the pneumatic cavities about the orbit flows through the vasa supraorbitalia, frontalia, ethmoidalia and ophthalmo-facialia into the vena ophthalmica. Apropos of this, Kuhnt⁸ says: "The orbit being nearly surrounded by the nasal and pneumatic cavities, a congestion or hyperemia of all or but a part of the mucous membrane lining the cavities makes an engorgement or passive hyperemia of the parts drained by the vena ophthalmica not only possible, but probable." Nevertheless, he does not accept this theory of a venous stasis, but attributes the various phenomena of sinusitis to an absorption of poisonous or infectious matter from the cavity. The only case of detached retina in connection with accessory sinus disease that I can find is one described by Kuhnt of unilateral frontal sinusitis, with uveitis, opacities (fixed) in the vitreous, retinal detachment and a great loss of vision, same side, in a syphilitic patient. After the subsidence of the stormy symptoms (of the sinusitis) the opacities and detachment persisted, with nearly total blindness; vision equaled fingers counted at one meter distance in the lower half only of the visual field, which condition, on account of the detachment, is necessarily permanent. Although the vision was previously good and the nearly total loss was sudden and followed closely on the acute attack of sinusitis (frontal pain, edema of upper lid, ptosis, etc.), still he looked on the acute sinus attack only as a possible causal factor, considering rather the uveitis, detachment, etc., to be the result of the transference to the anterior part of the uveal tract of infected matter, "schädlichen Agens," from the sinus, rejecting the theory of a venous stasis even in this case, where a local circulatory disturbance was evidenced by edema in the lids and a subretinal serous exudate, and this subretinal exudate must be considered the sole explanation and cause of the sudden nearly total loss of vision.

This "orbital hyperemia or engorgement" may manifest itself in different places; in the lids and adjacent soft tissues, frequent; behind the globe, cellulitis, with possible exophthalmus and eventual orbital phlegmon; under the conjunctiva; in the iris, sluggish pupil, often noted; in the ciliary body, producing an affection of the

6. Ziem: Ueber Einschränkung des Gesichtsfeldes bei Erkrankungen der Nase und ihrer Nebenhöhlen. Berlin klin. Wochenschrift, 1888, No. 37, und Deutsche med. Wochenschrift, 1889, No. 5.

7. Gurwitsch: Ueber die Anastomosen zwischen den Gesicht- und Orbital-venen v. Graefe's Archiv, vol. xxix, No. 4.

8. Kuhnt: Ueber die Entzündlichen Erkrankungen der Sinusnasen und ihre Folgezustände.

accommodation, this last symptom being the most frequent of all and very characteristic of this trouble—in fact, I have diagnosed several cases of sinusitis where no other symptom save the consequent asthenopia or “neuralgia” was present. Ciliary engorgement, and chorioidal edema also, could eventually terminate in a uveitis, hyalitis and disease of the vitreous, as well as a retinal detachment. One case, similar to Kuhnt’s, of descemetitis, cyclitis, chorioiditis, with serous infiltration in the chorioid, striæ and fine fixed opacities in vitreous, with gradual but marked loss of vision due to an inflammation of the frontal sinus. (Relief from frontal pain, pain in globe, photophobia, etc., by syringing a mucopurulent secretion from sinus after I removed the anterior end of middle turbinate.) This case of sinusitis followed an attack of the grippe, a very frequent cause of the disease. This hyperemia or engorgement could also manifest itself in the optic sheath, causing a papillitis (nearly always present, Kuhnt) or a retrobulbar neuritis, and, if persistent, optic atrophy. That this serious and often disastrous complaint, retrobulbar neuritis, is frequently the result of an unrecognized affection of an accessory sinus I think there can be no doubt, when we remember the pathology, a serous exudate between the sheaths of the optic nerve, and the history of a typical case, i. e., generally unilateral, sudden in onset, the most frequent cause a cold “*erkältung*” and frequently accompanied by severe headache, and I often find after a careful differentiation that the “headache” of the patient is nothing more or less than a frontal pain indicative of a sinusitis. “How easy it is, in fact, to mistake the pain accompanying the inflammation (of the frontal sinus) for an ordinary headache” (Celliez).⁹ From the cases I have seen and the results I have had I conclude, first, that many obscure cases of ocular trouble, where the cause was unascertainable, or credited to a “cold” or the infectious diseases (grippe, measles, whooping cough, and any disease accompanied by coryza), were the results of an inflammation of an accessory sinus, particularly so where such pathologic conditions existed as could be produced by a local circulatory disturbance, and, second, that if this causal disease is recognized early and treated properly many an eye could be saved whose vision would otherwise be either partially or completely lost. Furthermore, lest it be said in contra that cases of retrobulbar neuritis or other eye disease have been repeatedly subjected to a nasal examination by good rhinologists, and no evidence of a sinus involvement discovered, the finding being negative, let me add, and emphasize the fact, that I have had several

⁹ Celliez: Observation sur un abcès dans le sinus frontal, etc. *Journal de Médecine, Chirurgie, etc.* vol. xi

cases, some reported, where there was no nasal discharge and the nasal examination was absolutely negative, save for a slight hyperemia, and these cases were not suspected or "probable cases" of sinusitis, but ones in which I relieved the symptoms by simply draining the sinus. In the above case of detached retina the nasal examination showed nothing abnormal with the exception of the hyperemic middle turbinate.

A METHOD OF ADVANCING THE TENDONS OF THE RECTI MUSCLES.

HENRY DICKSON BRUNS, M.D.

Surgeon in Charge of the Eye Department of the Eye, Ear, Nose and Throat Hospital; Professor of Diseases of the Eye in the New

Orleans Polyclinic.

NEW ORLEANS, LA.

Before describing certain modifications of this operation which I have found useful, I wish to say that in this especial field I belong wholly to the conservative party. I have always held to the view so clearly expressed by Hanson and Reber (*Anomalies of the Extrinsic Muscles*), that in cases of muscular imbalance the whole art of correcting faulty refraction, every means of strengthening the weak muscles or improving their imperfect innervation should be tried with endless patience and exhausted before we counsel a resort to surgical interference. Unfortunately, we are not yet in a position, before making the experiment, to do more than *think* that cases which appear unpromising at the outset may not yield to other than surgical measures. Even in cases of esotropia which do not improve under atropine and the full correction, I am driven to tenotomy with reluctance. To-day the muscles of convergence and accommodation may certainly be called the muscles *par excellence* of civilization, and anything that weakens the one or the other must be regarded as a misfortune to which we are forced by a necessity of ignorance. How much can be accomplished without surgery is shown by the records of our hospital and private practice, in which cases of tenotomy more and more seldom appear. The laity is learning what can be done by early attention to refractive and other errors, and in this way the majority of squints are corrected before a resort to surgery has become imperative. But while tenotomies decrease, advancements increase in number, as, from my point of view, is desirable. Advancement is more of an operation, is more tedious and more painful, but it seems to me to rest on sounder physiologic and surgical principles. Therefore, a method of performing this operation that is quick, precise and thoroughly effi-

cient is much to be desired, and such a one, I believe, is that I am about to describe.

From the time of my first operation until our present plan had been gradually evolved by my chief of clinic and professional partner, Dr. E. A. Robin, and myself, the technic of this operation has always seemed to me decidedly defective. These defects still linger in the descriptions and pictures of many of our text-books. From numbers of these the beginner may well be led to suppose that the tendons of ocular muscles can be grasped, manipulated, sewed and moved about like the Achilles and triceps. He is shocked when their tenuous semi-transparentness is first exposed to his view. The ease with which they split, fray or ravel out in the direction of their length was most disconcerting when I first became practically acquainted with it; and to this day I have but little confidence in the holding power of the sutures, which, I sometimes read, are to be passed and fasten this way and that through tissues barely thicker or more resistant than a damp cigarette paper. As a beginner, I never felt certain that I had really and permanently shortened the muscle operated on, and so I was led to try every suggestion that seemed at all reasonable until such certainty was attained. And this constitutes the chief merit of the plan I now propose; for there is little original in it, save the method of dealing with the loop or tuck; but this thorough sifting of the many proposed procedures, the elimination of all details proven useless, and the holding fast to those found to be good, may excuse my offering it to the consideration of my confrères.

I can not now remember from whom I first got the suggestion, but the plan now universally pursued, I believe, of fastening the loop in the way the stump is tied off in doing ovariectomy, by transfixing the tendon at its middle point with a double thread, cutting off the needle and tying the two sutures firmly down at the two edges of the tendon, was a great advance in securing a permanent fastening. Nevertheless, I could never have the hardihood to cut away the loop so tucked up; now I consider it not only an unnecessary but an ill-advised practice. The next difficulty which always left me dissatisfied with my immediate result was that of isolating and catching up the tendon in such a way as to secure just the desired amount of shortening. While this was causing me great dissatisfaction, I saw somewhere a drawing and a description by Dr. C. F. Clark of Columbus, Ohio, of a three-bladed hook of his invention. This hook is so constructed that when the instrument is at rest it appears in profile like an ordinary strabismus hook, but in reality the hook is composed of three blades lying closely along-

side of and parallel to one another. By twisting a nut on the stem the middle blade can be made to protrude far beyond the two lateral ones, which are fixed, or can be drawn high up toward the handle above them. This instrument at once appealed to me as offering a great improvement on the plan of isolating the tendon on two strabismus hooks or pinching up a tuck with the fixation forceps. I procured a Clark hook, and, while I was not disappointed in the ease with which it enabled me to secure a tuck of any size, I found its construction defective. The sleeve or nut was too narrow or short, and the thread on the stem and in the sleeve too coarse, so that there was lost motion. When there was resistance the little nut would become twisted and jam on the screw thread, and the hook could not be made to move either up or down except by exerting great force; this was apt to lead to sudden pressure on the eye, or to jerks on the tendon, rolling the eye about and causing distress to both operator and patient. I therefore had Meyrowitz make me an instrument having an egg-shaped sleeve, which embraced quite a portion of the thread on the shank, and to cut this thread much finer, and at the same time to flatten the beak of the middle hook and perforate it with a hole large enough to pass a fine eye-needle through. The object of this perforation will appear in the following description of the operation.

The eye being cleansed, cocainized and treated with adrenalin, and a few mm. of a solution of cocain and ad. chl. (Coc. 4 per cent., 2 mm. ad. chl. 1-1,000, 2 mm., aq. 14 mm.) having been injected along the tendon to be shortened, the conjunctiva is caught up and snipped with the scissors so as to give an opening perpendicular to the length of the tendon and a little behind its insertion. It is dissected up freely forward and backward to expose the field of operation. The middle blade of the Clark hook, protruded beyond the two lateral blades so as to appear like and act as a fine strabismus hook, is pushed under the tendon, a snip of the scissors on its end allowing it to be passed clear from one border to the other. It is passed backward and forward so as to rip up the tendon and cause it to lie flat on the hook. The tendon being now held on it as on the ordinary strabismus hook, the little nut or sleeve on the stem is turned until the central hook holding the tendon comes level with the two side ones, and then, still carrying the tendon, rises above them. In this way, the two lateral hooks pressing the tendon against the eyeball, the central hook raises a narrow portion of the tendon between them into as large, long, or high a tuck as may be desired. With a little care, stopping once and a while, the eyeball can be turned as much as one pleases toward the side of the shortened

tendon. I have raised a tuck at least three-eighths of an inch in height or extent with this instrument. While the loop or tuck is held up, the needle carrying the doubled thread is passed between the eyeball and the two lateral hooks through both folds or sides of the tuck at a point midway the breadth of the tendon. The needle is cut off, the two sutures thus formed are tied under the lateral hooks, the one at the lower and the other at the upper edge of the tendon, as tightly as the strength of the silk will allow. Were the Clark hook to be now withdrawn the loop would be left standing erect, perpendicular to the course of the tendon. Before withdrawing the hook, however, one small needle of a suture carrying a needle at either end is passed through the hole in the beak of the central hook; the sleeve or nut is turned down, the pressure of the hook carrying the tendon is relaxed, and it is withdrawn, carrying the double-needled thread with it. After the central hook is free from the loop of the tendon, the thread, which, of course, is doubled on the side to which the hook has been drawn, is cut and immediately re-needled. The tuck, securely formed and fastened in the course of the tendon, now stands erect, carrying in its loop a double-needled suture. The upper needle of this suture is passed beneath the anterior lip of the conjunctival wound, getting a firm hold on the episcleral tissue, until it emerges at a point perpendicularly above the center of the cornea; the lower needle is passed in a similar way until it emerges at a point perpendicularly below the center of the cornea. If, now, the upper needle is carried back and passed (from without, inward) through the posterior lip of the conjunctival wound, above its center and about one-eighth inch from its edge, carried along beneath the conjunctiva about one-fourth inch, made to emerge and the suture it carries is tied to that which was brought out below the corneal margin, we will have, not only a pulley suture, *à la Prince*, which closes the conjunctival wound, but a "guy-suture," which holds the loop of our tuck flattened down and drawn strongly forward and held firmly in place until organic adhesions seal it permanently in its new position. This guy-suture also prevents the possibility of the sutures by which the tuck is formed and fastened from slipping or coming away, and holds the eyeball drawn toward its new position until adhesion is complete. This takes place in about a week or ten days, when the guy-suture, having fallen slack, should be cut at any point of its course and drawn out.

There can be no doubt that by this method the tendon is actually and permanently shortened. The large lump formed by the folded forward tuck may be easily perceived for many months after the

operation. Operating on one eye only, I have obtained an immediate result as high as 14° (at 20 feet) and a permanent result as high as 8° without impairing in any way the motility of the eyeball. The guy-suture, while closing the conjunctival wound, and also holding the tuck and the eyeball in place by its pulley action (Prince), best avoids the production of any operative hyperphoria, if it be correctly and carefully placed and tied. The silk sutures, which tie off and form the tuck can, if black, long be seen through the semi-transparent conjunctiva and be removed in six or eight months if the patient desires. The dressing consists in the free instillation of 10 per cent. argyrol solution and the usual linen disk, absorbent cotton pad and flannel pressure bandage. This is removed after twenty-four hours, and the argyrol solution is instilled every few hours to guard against possible infection. Of course, in bad cases both eyes may have to be operated on, but I always allow an interval of many weeks to elapse before attacking the second, so as to be able to judge of the necessity. As to this necessity I am guided entirely by the symptoms. If headache and other asthenopic symptoms have vanished, I do not regard the persistence of one or two degrees of exophoria as an indication; for many with perfectly "strong" and comfortable eyes will show so much imbalance if carefully measured. I always consider it proper, however, to warn the patient that if the symptoms recur the fellow eye should also, probably, be operated on.

ADVANTAGES.

The advantages of this operation seem to me:

1. It is precise and definite, and after a little practice it can, under the anesthesia produced by the subconjunctival injection of cocain and adrenalin, be quite quickly, smoothly and painlessly performed.

2. The simple perpendicular incision through the conjunctiva. Incisions of an L-shape, forming a rectangular flap, are bothersome and harder to replace neatly and quickly.

3. The use of the Clark's hook allows the amount of shortening to be very well regulated and makes it easy to put the double suture through the middle of the tendon neatly and very securely. The hole in the end of the Clark's hook permits the "guy-suture" to be placed while the instrument is being withdrawn, without loss of time.

4. The "guy-suture" (so far as I know, the only original feature) not only prevents any possible slipping off of the sutures forming the tuck, but holds the tuck securely flattened down in proper position, toward the cornea, until adhesions have formed. The folded-

down tuck can be perceived as a lump beneath the conjunctiva for months and assures us that the amount of shortening aimed at is actually maintained.

The method of fastening the "guy-suture" draws the eyeball forcibly toward the side of the advancement without the possibility of anything slipping or giving away; it closes the conjunctival wound without recourse to additional sutures and in such a way as to protect the cornea from injury by pressure of the thread; and, above all, its disposition *à la Prince* affords the best possible security against causing any hyper- or hypophoria, a condition often worse than that we sought to relieve by the advancement.

Finally, it is most easily removed by a snip with the scissors.

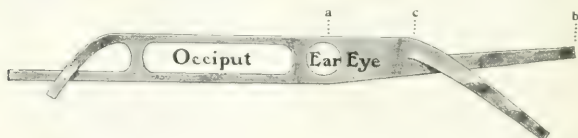
AN EYE BANDAGE.

RUSSELL MURDOCH, M.D.

BALTIMORE, MD.

(Illustrated.)

From a piece of flannel, of the ordinary breadth, take a four-inch strip and cut out of the middle a small round opening two inches in diameter; then, one inch beyond, a larger one two by five inches:



still further, leaving a one-inch bridge, cut a piece so as to leave two strings one inch broad.

From the other side cut a long slanting strip, extending from the middle of the side to the middle of the end. Slit symmetrically backward to within three inches of the border of the small hole. There are thus formed the cover for the eye and two strings.

In applying, pass the ear through the small hole, the back of the head through the larger, and cover the affected eye with the only uncut piece. Cross the strings and tie.

Reports of Societies.

THE COLORADO OPHTHALMOLOGICAL SOCIETY.

Meeting of March 19, 1904.

The following cases were shown:

Dr. E. W. Stevens presented

DOUBLE OPTIC NEURITIS.

CASE 1.—M. C., aged 61, female, unmarried. First seen Feb. 10, 1904. Patient came for failing vision, first noticed five days before. No other subjective symptoms. Family history negative. Urine normal. O. D. V.=4/20, O. S. V.=4/25. Ophthalmoscopic examination disclosed double optic neuritis. The swelling of each disk estimated to be 3 D. No retinal hemorrhages were observed. The case was improving markedly under mercurial inunctions, and KI in ascending doses.

UVEITIS OF BOTH EYES.

CASE 2.—The patient was a man, aged 24 years, single. Was first seen March 16, 1904. With the exception of pneumonia four years ago, and the ordinary diseases of childhood, the patient has always been healthy. His habits have been good; no venereal disease of any kind. Was a dentist. His family history is also good, parents and sisters being alive and healthy. The patient gives no appearance of constitutional disease. The urine contains neither albumin nor sugar. Nine months ago he first noticed poor vision in the left eye. Since then his sight in this eye has gradually grown worse, with numerous floating opacities. Three weeks ago he first noticed the vision of the left eye was "getting misty," and applied to an optician, who gave him glasses. During the past two weeks the vision of the left eye has rapidly grown worse. On examination his vision was O. D.=1/60 O. S. 4/25. There was no trace of redness of the anterior external segment of either eye. On the posterior surface of the cornea of O. D. there were a few gray dots irregularly placed. The pupil reacted normally. The vitreous contained many floating opacities, through which no details of the fundus could be observed. The posterior surface of the cornea of O. S. presents numerous dots arranged in the usual triangular form. The pupil dilates freely.

Ophthalmoscopically, a somewhat hazy vitreous was found, with general edema of the choroid. The patient is being treated by

mercurial inunctions, iodid of soda in ascending doses and pilocarpin sweats.

GUNSHOT WOUND OF THE EYEBALL, WITH PHOTOGRAPHIC PLATES
SHOWING SHOTS IMBEDDED IN THE ORBITAL TISSUES.

CASE 3.—C. R., aged 16, male, forty-eight hours ago, was struck in O. D. by a shot fired from a shotgun at a distance of about 150 feet. The size of the shot was unknown. The shot cut the margin of the upper lid and penetrated the eyeball through the ciliary region just above the cornea, the latter being uninjured. The anterior chamber was filled with blood. Two photographic plates, taken by Dr. G. H. Stover after Sweet's method, showed the shot outside the eyeball, in the orbital tissue posterior to the globe. Dr. Stevens was treating the case conservatively and would not enucleate unless there were further symptoms.

Discussion of Case 2.—Dr. Melville Black suggested thorough examination of urine for urea, phosphates and indican.

Case 3.—Dr. Edward Jackson mentioned as diagnostic aids in such cases, that where a shot had gone through the eyeball, lodging in the orbit, it is well to look for ecchymosis under the conjunctivæ. He mentioned a case of similar injury that had showed such symptoms.

Dr. W. C. Bane questioned the safety of retaining such an eye in the orbit. Dr. Black suggested ice compresses.

DOUBLE OPTIC NEURITIS.

Dr. David Coover presented a case of double optic neuritis. Male, aged 25. Complains of headache on using his eyes for the past two weeks; pain is referred in and behind O. D. ball and along right temple. Eye feels full, as though there was pressure behind it, and slight soreness on movement of eye up and outward. Tenderness on deep pressure in socket. No history of syphilis, rheumatism, la grippe or injury. Reflexes normal. A neurologist finds no disease of his nervous system. Vision O. D.=6/12 O. S 6/6. Pupils normal, excursions of eye good. Examination of urine negative. Ophthal. O. D. Optic nerve swollen, irregularly, estimated to be 6 D., no hemorrhages, veins enlarged. O. S. Optic nerve swollen, estimated to equal 3 D. Treatment consists of KI gr. xxx t. i. d.

Discussion.—Dr. E. W. Stevens as a diagnostic aid, mentioned the writings of a French author, who believed that when the optic neuritis is of a toxic character, the vision declines out of proportion to the apparent nerve swelling, the reverse being the case when the neuritis was of organic origin.

Dr. Patterson asked if the field had been taken as an aid to di-

agnosis, believing there was a suspicion of retrobulbar causation.

Dr. Edward Jackson stated that retrobulbar neuritis can affect both eyes, and thinks in this case the tenderness was suggestive of it.

Dr. Coover, in closing, inclined to the diagnosis of a retrobulbar affection, from the fact that his history throws no light on the cause from the pain on the right side and behind the globe and from the soreness on movements.

Dr. W. C. Bane showed

A CASE OF UVEITIS.

CASE 1.—J. S., aged 55, male, a Swede. Occupation miner. Came under his care March 16, 1904. He had been wearing glasses for near vision for about seven years, and had them changed two months ago. The latter glasses served him fairly well until within the past two weeks, when his vision became quite dim. Nine months ago a rock weighing three tons, crushed in the roof of the house in which he was sleeping, and one of the timbers struck the left side of his head, causing paralysis of the left facial nerve.

From this paralysis he has not fully recovered, though he can close his left eye with an effort. Vision O.D.=6/21 O. S. 6/21 minus.

The vitreous is hazy in both eyes, containing numerous opacities. The veins are a third larger than normal, yet not unduly tortuous. The discs are slightly swollen, and the margins poorly defined. The retinæ are cloudy. In the left vitreous is an inflammatory exudate of an appearance somewhat resembling a cysticercus. He has neither head nor eye pains. The urine is normal; no specific history. Treatment consists of rest and protiodid of mercury.

HEMORRHAGE NEURO-RETINITIS ALBUMINURICA.

CASE 2.—The patient was before this society two months ago and has come again that the members might observe the changes in the left eye. Some of the hemorrhages that were present at that time have been absorbed, and others have taken place. More of the whitish patches are in evidence; the discs are less swollen; there is no improvement in vision.

DETACHMENT OF THE RETINA.

CASE 3.—Male, aged 51, school teacher, was struck on O. D. with a small snowball thirty-two years ago. Pain and almost total loss of vision immediately ensued. Later the vision improved sufficiently for him to read the headlines of a newspaper. Now he

can only detect moving objects held between the eye and a window. There is no congestion of the external structure of the eye. O. D. deviates out, 50 centrad. The ophthalmoscope reveals a fairly uniform detachment of the retina, the anterior vessels being best seen with +7. Floating vitreous opacities and a few large black pigment deposits along the superior retinal vessels. The detached retina does not have the usual bluish-white appearance, but is nearer the hue of a normal retina, though hazy. Vision of the fellow eye = 6/9+. Prognosis unfavorable.

Discussion of Case 1.—Dr. Jackson believed the case to be one of uveitis, and as both eyes are affected, he does not believe the accident to have been a causal factor.

Dr. Melville Black presented the following:

DIVERGENT SQUINT.

CASE 1.—F. L., aged 14. You will observe by watching him a few moments that his right eye turns out and upward.

He is not conscious of diplopia. Crossed diplopia can be readily discerned by a red glass over one eye.

His adduction=38 degrees, adduction O. At times there is an e-phoric of 3 degrees at a distance. At other times exophoria.

ULCER OF THE LOWER LID.

CASE 2.—Male, aged 45, had syphilis eighteen years ago. He had been to Hot Springs for treatment frequently since, but has taken no treatment between times. Three weeks ago a pimple came on the margin of the inner third of the lower lid. It broke and then got some foreign substance in that a friend of his removed. The lid then became very sore and began to grow larger until he now suffers from it.

Condition.—Right lower lid, swollen red and a dirty-grayish ulcer occupies the entire inner third of the lid border. Some loss of tissue is evidenced by the absence of lashes and the depression of the ulcer. The outer margin of the ulcer is slightly indurated, but below the ulcer the lid, while swollen, is not especially hard.

While inclined to a diagnosis of a gumma that has broken down, I should like the opinion of the members present concerning it. He is under KI gr. lx, t. i. d., but has only been under treatment a few days.

Discussion of Case 1.—Dr. Stevens suggested prism exercises.

Dr. Neepor related a case of great exophoria, cured by circumcision.

Discussion of Case 2.—Dr. Jackson suggested ichthyol locally.

Dr. Neepor suggested x-ray.

Dr. Stevens suggested nitric acid, full strength.

Dr. Marburg suggested 5 per cent. chromic acid.

Dr. Coover and Dr. Neepor believed the outer induration of ulcer suggested syphilis, and the softer condition of the conjunctival border indicated an infection probably of a streptococcal variety. Dr. Coover believed it was a variety of syphilitic ulcers without pain.

Dr. Bane said if the infected portion was of staphylococcal form, iodoform would improve it.

Dr. Jackson, answering a query by Dr. Black, "if syphilitic ulcers in such position were usually free from pain," stated "he had seen a broken-down gumma of the inner canthus, in which no pain was complained of."

ABSORPTION OF CATARACT.

Dr. Melville Black discussed the conditions of cataractous eyes that had been treated by many of the so-called quack absorption methods, and inquired what influence such treatment had upon such eyes for subsequent operation. He related a case in which extraction had been done where an absorption "cure" of an irritating character had been previously employed. He found only the nucleus remaining, the rest of the lens being semi-fluid. The anterior segment of the vitreous was semi-fluid.

Dr. Jackson said one of the most rapidly increasing cataracts he had ever seen had followed the use of one of such so-called "cures."

Dr. Neepor had operated on two cases following such treatment, in which he noticed no difference from the usual conditions.

Dr. E. W. Stevens related a case which had been so treated. Operation was done without accident, but an iritis followed, leaving behind a dense tough posterior capsule.

CHANGES WHICH THE CRYSTALLINE LENSES UNDERGO IN ACCOMMODATION.

Dr. Edward Jackson referred to the theory of Helmholtz, who believed that tension was removed from the suspensory ligament in the act of accommodating, and that the lens then became more globular in form, the bulging of the anterior surface being the greater. Tscherning, in brief, believes that greater tension is made on the capsule, which causes the lens to become flattened at the periphery though conical, somewhat of the shape of lenticonus at the center, and that with Helmholtz the posterior surface of the lens does not change much in its contour.

Howard Grossman¹ reported observation on the shape of the

¹ Trans. British Med. Association, 1907.

crystalline lens in accommodation, observations having been made on a case of aniridia having considerable accommodation power for such cases. Very small areas of anterior and posterior polar cataract were present, which gave excellent points to watch the movements of the lens surface when in action. Grossman believed from these observations that there was a bulging of both the anterior and posterior surfaces of the lens, as well as a flattening at the periphery.

Hess has demonstrated almost absolutely that the zonules are relaxed in the accommodative act, being more marked under eserin and more fixed under atropin.

Priestly Smith has shown that the lens structure is such that the resistance in it is different, for different thicknesses.

Dr. Jackson has observed that in making the *shadow test* on the majority of individuals with a large pupil of 6 or 7 mm. in diameter, which can be found in young subjects, at one-third of a meter distance with a small point of light, 2 to 3 mm. in diameter, you can watch the lens contour by shadow, then, when the patient accommodates for a point 31 cm. from his eye, you will get reversal of light at the center of the lens which does not occur at the periphery. Observations made with patient accommodating at a still closer point show that as accommodation increases the refraction at the edge of the pupil increases, indicating that, though the convexity at the center of the lens increases, it does so faster than that at the periphery, though this increased convexity is observable in all areas.

Dr. Jackson's observations lead him to conclude that there is a distinction between an absolute flattening of the periphery of the lens and a relative flattening. He agrees largely with Helmholtz' theory.

Dr. Jackson's observations in one case of aniridia proved that the lens in such individuals did not act under the same conditions as the normal eye, which must be taken into account in considering Grossman's observations.

April 26.

J. A. PATTERSON, Secretary.

MEXICAN OPHTHALMOLOGICAL SOCIETY.

Session of Nov. 12, 1903.

Dr. Santos Fernández read this paper.

"STATISTICS OF TRACHOMA IN CUBA."

Discussion.—Dr. Montaña said that with these illustrations it was well proven that trachoma was transmissible in Cuba; that in

Mexico the contagion had not been so well demonstrated, perhaps because the germ was weakened by the high altitude. Chavez thought that trachoma was contagious in Mexico also, under circumstances of physical weakness.

Ramos said that the question covered two points. First, transmissibility in general; and, second, in Mexico, in particular on the central plateau. On this plateau it is scarcely at all infectious, because the germ does not live there.

SOME POINTS IN SCHOOL HYGIENE.

Dr. Velez read a paper on this subject.

Discussion.—Dr. Ramos said that he preferred to the electric light either a wax candle or lamp, and would discard the old-fashioned round Spanish letters in favor of the more modern and generally used English type.

Velez, in answering, said that he preferred the electric light, as it was clearer, gave little heat, did not consume oxygen, and was in general use.

Session of February 4, 1904.

THE INSERTION OF AN ARTIFICIAL GLOBE INTO TENON'S CAPSULE. WITH PRESERVATION OF THE FUNCTION OF THE OCULAR MUSCLES.

Dr. C. Bauer read this paper.

Discussion.—Dr. Montaña said that in Mexico it was hard to get the proper shaped globe. Those supplied were not always the right color, nor could they be made to fit into the Mexican eye.

Dr. Uribe-Troncoso said that the ideal substitute for the natural eye had not yet been found. What was required was something that would fill the cavity just enough to prevent an accumulation of tears.

A CASE OF INFECTIOUS PAPILLITIS.

Dr. Ramos read this paper. This was a woman who at first had had a furunculous eruption in various parts of the body. The urine showed no sugar nor other abnormal condition. Shortly after pulmonary tuberculosis developed, and then she began to note a decrease in vision. She was examined by several men, who found neither photophobia nor lachrimation, but pronounced mydriasis in both eyes, with decided reduction in light perception. There was a papillitis, a strangulated nerve head, thread-like arteries, injected veins and retinal hemorrhages. He could not explain this neuritis, not knowing whether to attribute it to either the furunculosis or the tuberculosis. He did not think it was a tubercular meningitis.

Discussion.—Dr. del Valle said that an intestinal infection might cause just such ocular symptoms.

Dr. Montañó said that such a papillitis might develop on a puerperal infection.

DIFFERENTIAL DIAGNOSIS BETWEEN CHRONIC GLAUCOMA AND ATROPHY OF THE NERVE.

Dr. Uribe-Troncoso read this paper. He said this is a very difficult diagnosis, and at the same time one of great importance. He laid great stress on the condition of the fundus, form of the excavation, the existence or not of a peripapillary halo or ring, the disposition of the vessels on the nerve head, pulsation, etc.

Dr. Ramos had practiced iridectomy in a tabetic patient, assuming that it was glaucoma, but in such a case the differential diagnosis is important, and may be made to depend on the state of the muscles, of the pupil and of the fundus itself.

Dr. Montañó thought that Uribe had a very sensible diagnostic method in the analysis of the aqueous.

Dr. Uribe-Troncoso, in reply, thought he could say that what analyses he had made of the aqueous showed that when there is no increase of tension there is no albumin.

Session of March 3, 1904.

SUBRETINAL CYSTICERCUS.

Dr. Chavez presented for examination a patient with subretinal cysticercus in the right eye. The frequency of this disease in Mexico is about 1 to 4,000. The most interesting feature of this case is that it shows two detachments—one in the region below, near the equator, and the other more external and anteriorly. This is distinguished from the former by its blue color. It has a white point below, is rather spherical, and some vessels show on its surface. Between these two detachments there is a bridge, arousing the suspicion that the cysticercus emigrated from the lower part to the external part. As treatment, he preferred extraction.

Dr. Uribe-Troncoso showed the retinoscope and electric ophthalmoscope of Zeng, which he had recently purchased in the United States, and with which this patient was now examined.

Discussion.—Dr. Montañó said it was clearly a case of subretinal cysticercus. He supported the idea of extirpation of the vesicle, and begged Dr. Chavez to let the Society know the result.

Dr. Ramos had seen several cases of cysticercus in the vitreous and retina, and even the iris. He had felt that all the various means of treatment proposed for preserving the eye had finally

failed, and the ultimate result was that the eye was lost. Still, he thought extraction ought to be attempted, for there was always a chance of saving the eyeball. In the second case, that of papillitis, he was interested in the amount of vision still retained, in spite of the length of time the optic atrophy had existed. It showed, of course, that some nerve fibers were still intact. He mentioned one case of a woman with peritonitis and optic neuritis following, who at first could scarcely distinguish light, but after energetic treatment she recovered enough visual acuity for ordinary labor. He advised always making functional tests with the aid of the ophthalmoscope, in order to avoid a fatal prognosis, because many of these cases were undoubtedly curable.

Dr. Uribe-Troncoso said that the case of Dr. Chavez was interesting because there could be seen the two distinct phases in the life of the parasite. He observed, moreover, a white line above, extending to the papilla. This might be the place where the first lodgment had been effected. He thought this was a very good case for operation, the parasite being in the retina, because when it is in the vitreous extirpation is very much more difficult. Statistics show that perhaps 60 per cent. of cases were curable.

Dr. Montaña presented a case of optic neuritis, to show the results of seven years' treatment. The patient now had good visual acuity, with normal chromatic sense.

Translated by ALBERT B. HALE.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

May 5, 1904.

John Tweedy, F.R.C.S., President, in the chair.

RETINAL AND OPTIC NERVES IN ANENCEPHALY.

This paper was read by Mr. Stephen Mayou, who dwelt on the controversy as to whether the axis cylinders of the nerve are derived from the brain or the retina; or, as is more usually held, from both. The myeline sheaths appear to develop from the brain toward the retina. In the full-termed anencephalic fœtus which he had examined there was an arrest of development at the stage where the primary and secondary optic vesicles are formed and the nerve sheath is differentiated, but before the formation of any axis cylinders or chiasma.

The optic nerves showed no trace of axis cylinders anywhere. The choroid was hypertrophied and the various layers of the retina

were present with the exception of the layer of nerve fibers, which was completely absent.

The condition was, therefore, one of a fully developed retina with the exception of the nerve fibers, which are, therefore, shown to be quite dependent on the proper development of the cerebral centers.

TRACHOMATOUS PANNUS AND ITS ASSOCIATED CORNEAL CHANGE.

Major Herbert, I.M.S., described the corneal changes seen in the acutely progressive forms of trachoma. He frequently found that the whole surface of the cornea would stain with fluorescein, showing that it was inflamed. The marginal vascular zone never stains, showing its protective nature. In old cases, the author described a lymphoid pannus. In this condition well developed nodular elevations, feebly vascular, develop on the site of an old diffuse corneal opacity. These may coalesce and their margins overlap the sclera. Should these become inflamed they become highly vascular and thickened, forming ultimately the pannus crassus or carnosus. Apart from this condition, the limbus may present lymphoid thickening, forming a ring around the cornea. This occurs almost exclusively in recent follicular conjunctivitis.

The permanent result of mild chronic pannus are small indentations on the cornea, which in the natives of India may become pigmented: these are not due to ulceration, but probably to a reabsorption of the lymphoid nodules.

TRICHIASIS AND THE OPERATIONS FOR TRICHIASIS.

This paper was by Mr. W. E. Cant (Jerusalem). The author dealt at first with the extreme prevalence of trichiasis in the east, and, out of 68,000 cases at the British Hospital at Jerusalem, 12,000 suffered from it. Shrinking of the conjunctiva and thickening of the tarsus were the two things that rendered the relief so difficult.

Of the various operations, the author gave the preference to Snellen's, in which a wedge-shaped piece of tarsus was removed. With this operation complete, correction of the deformity is possible, the lashes can be turned well outwards, no raw surface is left, healing is rapid and complete, and its effect can be modified to suit even severe cases. For these cases the original V-shaped incision is converted into a U, and the tissues are removed down to the conjunctiva. The sutures, he suggested, should be inserted from the lid margin, behind or beneath the lashes, and out through the lower lip of the cut, so that on drawing the two ends together great ever-

sion is produced. If the entropion extends quite into the canthus, canthotomy or canthoplasty were employed as adjuncts.

Dr. Rockliffe read short notes on the following cases:

ATROPHY OF BOTH OPTIC NERVES WITH PRIMARY AMENORRHEA.

This case had been under observation for six years, with steadily increasing atrophy and no other special or general symptoms. There was deep blue cupping, but no neuritis or hemorrhage. The retinal vessels were not attenuated, and, with the exception of an infantile uterus and undeveloped sexual organs, the remaining organs were healthy.

OPTIC NEURITIS FOLLOWING CONCUSSION OF THE GLOBE.

The patient received a severe blow on the eyeball (right), immediately followed by loss of vision, with intense optic neuritis. There was neither wound of the eyeball, traumatic cataract nor displacement of the lens, hemorrhage into the vitreous, ruptured choroid or detachment of the retina. There was, in addition to the optic neuritis, a hemorrhage into the yellow spot, with iritis. Three months later the vision of the left eye failed functionally. Six months later the vision of the left eye became normal, and the right eye improved to 6/18 and J4.

UNUSUAL SEQUENCE TO CATARACT EXTRACTION.

The patient, a decrepit old man, after an uncomplicated extraction, developed on the fourth day a dense diphtheritic-looking membrane of both lids and surrounding cornea. The pupil became blocked; there was no chemosis or pain, nor was there swelling of the lids. The corneal epithelium exfoliated and the eye was eventually excised, when the cicatrix appeared healthy and perfectly healed. The anterior and posterior chambers were normal, but the coloboma and iris were blocked with thick yellow membrane, with considerable iritic thickening.

A PECULIAR OUTBREAK OF GRANULAR OPHTHALMIA.

There were seven cases, all of whom had been nursing a diphtheritic child. They each had an acute attack of granular ophthalmia, without trachoma or membrane. It affected the lower lids only in five of the cases; both eyes were affected at intervals of a few days. In all there was a subnormal temperature, depression of spirits and lassitude, but no other general symptoms. The attack ran a similar course in each case and lasted fourteen days. The bacteriological examination was negative, except in one examination, where the bacillus xerosis in large quantities was present. The

examination was carried out by the Clinical Research Committee. Card specimens were shown by the following:

Mr. A. L. Whitehead—Pathologic specimens.

Mr. Harman—Case of paresis of certain third nerve muscles, with overaction of others.

Dr. Bronner—Specimen of acute abscess of Tenon's capsule.

Mr. Doyle—Peculiar condition of the lacrymal sac following injury.

Mr. Parsons—Tubercle of the choroid.

Mr. Lawford and Dr. Taylor—Case of myasthenia gravis.

Mr. Bickerton—Retinal changes one week after contusion of the eyeball; hereditary optic atrophy in two brothers.

Mr. Mayou—A method of differential staining for retinal and other nerve ganglion cells.

Mr. Paton—Two cases of congenital dislocation and malformation of the lenses occurring in a brother and sister.

Messrs. Silcock and Anderson—Arteriovenous aneurysm of the cavernous sinus.

Mr. C. Blair—A case of rupture of the choroid.

C. DEONEUS MARSHALL, F.R.C.S.

SECTION OF OPHTHALMOLOGY, COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting April 19, 1904.

Dr. S. D. Risley, chairman, presiding.

HISTOLOGIC EXAMINATION OF THE EYES IN A CASE OF AMAUROTIC FAMILY IDIOCY.

Dr. Edward A. Shumway and Dr. Mary Buchanan (by invitation) reported the results of this examination.

The clinical history had been reported before the Philadelphia Pediatric Society by Dr. James H. McKee, in June, 1903, and was typical of the disease. The child was of Hebrew parentage, healthy until 9 months of age. After that gradual paralysis of the extremities appeared, which became spastic, and was associated with progressive failure of mentality, and blindness. The ophthalmoscopic examination showed the usual picture of symmetrical white areas in the macular region, with a central cherry-red spot, and simple atrophy of the optic nerves. The child died of pneumonia at 29½ months. Formalin was injected into the eyes, eight hours after death, to prevent postmortem changes, and autopsy was made nineteen hours after death. The report of the pathologic changes in the central nervous system, made by Dr. Wm. G. Spiller at the meeting

of the American Association of Pathologists and Bacteriologists in New York City, April 1, 1904, showed widespread degeneration of the ganglion cells and tracts of white matter, in accordance with the results published by others. One eye was fixed in formalin, and the other in Müller's solution. There was marked degeneration of the ganglion cells of the retina. Many had disappeared entirely, those remaining being swollen, rounded, and free from chromophilic elements. The framework could be demonstrated with difficulty. Cells stained by the Weigert method revealed the presence of dark brown granules in the cell body. The retina was thinned, edema was not present, and postmortem changes were inconspicuous. The outer layer of the retina was infiltrated with pigment from the pigment cells. The optic nerve showed simple atrophy of the nerve-fibers, most advanced in the temporal half. The nasal half showed some normal fibers remaining. The findings confirm Holden's results in Hirsch's case, published in 1898, and show that the important change is in the retinal ganglion cells and in the nerve-fibers of the optic nerves, which atrophy, like those of the central nervous system, probably as the result of an inherited lack of vitality.

Discussion.—Dr. de Schweinitz recalled the case of a Jewish child that he had seen several years ago in the service of Dr. Randall at the Children's Hospital. The ocular changes in both eyes were similar to those shown in the case reported. The child died about the second year, and the eyeballs were removed, but he did not think that a microscopic examination had yet been made.

TRAUMATIC PERFORATION OF THE MACULA AND RUPTURE OF THE CHOROID.

Dr. G. E. de Schweinitz described a case of traumatic perforation of the macula and rupture of the choroid in the eye of a boy aged 14, who one year prior to his examination had been struck with a bullet shot from an air rifle. The lesions were: finely marked, disseminated, pigmented retinochoroiditis; sickle-shaped rupture of the choroid on the temporal half of the eye-ground, and traumatic perforation of the macula, or, as it is commonly known in England, a "hole in the macula." Dr. de Schweinitz briefly analyzed the literature of this subject, making special reference to the communications of Haab and M. F. Ogilvie. He also made some brief reference, as Haab has done, to ophthalmoscopic appearances in the macula exactly resembling traumatic perforations which are occasionally found in the eyes of elderly people, the subjects of arteriosclerosis.

Discussion.—Dr. Zentmayer referred to two cases, in one of

which, following a blow on the eye from an exploding soda water bottle, there was a deep glaucomatous cup and a hole in the macula. At the time of the injury he thought the macula condition to be due to a hemorrhage. Dr. Risley believed that the affection is more often regarded as a hemorrhage than a hole. He has now under observation a young man in whom the choroidal rupture was between the macula and the lower outer border of the nerve. A slight hemorrhage was present at the macula, which cleared up and showed a hole in the retina. Although the force of a blow on the eyeball usually expends itself at the posterior pole, he had recently seen a man with a complete rupture of the globe laterally which followed a blow from a mass of hardened clay. Dr. Harlan had recently treated a case of rupture of the sphincter of the iris and capsule of lens from impact of a small ball from a toy gun. No point could be found on the eyeball to indicate the spot at which the shot struck.

ATYPICAL PIGMENTARY DEGENERATION OF THE RETINA.

Dr. G. E. de Schweinitz described the eye-grounds, and illustrated them with water-colors, of a man, aged 36, who sixteen years prior to his examination had contracted syphilis, who was night blind, and who had always been short-sighted, but who maintained that until four years ago he was able to read. The eye-grounds showed typically pigment degeneration, disseminated choroiditis, and in the center of each fundus, occupying the macular region, large areas of atrophy, on the right side sufficiently great to expose the sclera, and on the left side not quite so extensive. Dr. de Schweinitz described the atypical varieties of pigmentary degeneration of the retina, and thought his own case was best explained by the supposition that the patient had always suffered from pigmentary degeneration of the retina, but that the macular and other lesions were the result of his acquired syphilis.

Discussion.—Dr. Pyle referred to the case reported by him before the American Ophthalmological Society as an example of unimpaired color perception and good central vision in this disease for at least forty-five years, permitting the patient to attend to his business of a paint salesman, notwithstanding that pigmentary degeneration had extended close to each fixation point. Dr. Harlan recalled a case of a young girl with good central vision, but she could not go about without an attendant. In reference to Dr. Pyle's case, Dr. de Schweinitz said that patients sometimes preserved central vision for long periods of time, and he had observed for the past fifteen years a woman, aged 40 years, with vision of 6/5, with fields contracted

to 25 . The optic discs were not waxy, and there was no apparent increase in the disease during this period.

CONGENITAL EXOPHTHALMOS PRODUCED BY ORBITAL HEMORRHAGE
FOLLOWED BY METASTATIC CHOROIDITIS.

Dr. C. A. Veasey reported this case: The infant was born without difficulty, after a short labor, and was the eighth child. Immediately after birth a slight exophthalmos of the left eye was observed which increased greatly in a few hours. The eye became so proptosed that a large portion of the cornea remained uncovered by the lids. No neuritis or retinal hemorrhage could be seen. In three days hemorrhages appeared from the conjunctivæ and from the mucous membrane of the mouth, and, a little later, large and small hemorrhages were found beneath the skin on all portions of the body. The latter cleared up, the bleeding from the mucous membrane ceased, but the tissues of the orbit became greatly inflamed, and the eyeball, now proptosed to the greatest possible extent, was seen to contain pus. Enucleation was performed, hemorrhage controlled by adrenalin and pressure, and recovery was rapid and uneventful. It is believed that the suppurative choroiditis was due to metastasis from the umbilicus.

Discussion.—Dr. de Schweinitz cited a case of exophthalmos in a child 9 months old, the proptosis appearing after straining during an attack of diarrhea. The eyeball gradually returned to its normal situation, the eyelids showing intense discoloration for some time afterward. Dr. Hansell had treated a child less than a year old, the proptosis continuing for several weeks. The eye-grounds were normal, and recovery followed the usual local measures. In the case of a man, the protrusion of the globe was associated with increased tension, marked swelling of the lids, and complete loss of power of rotation. Hemorrhage into the orbit was believed to be the causative factor. The urine contained albumin in large quantities, and the man died from uremia a few days after examination.

GUNSHOT WOUND OF ORBIT.

Dr. Wm. Campbell Posey exhibited this case, which was followed by post-traumatic delirium: The bullet was shown by the x-rays to rest to the lower inner portion of the orbit, close to the junction of the eyeball with the optic nerve.

Discussion.—Dr. Pyle believed that the bullet might be allowed to remain without causing any serious consequences, since many cases are on record of foreign bodies imbedded in the orbit remaining quiescent through life. Dr. Hansell thought no difficulty would

be found in removing the bullet, and referred to the case reported by him at the last meeting of the Section, in which the ball was exposed by an incision through the nasal third of the upper lid and dissection of the underlying tissues. Dr. de Schweinitz believed that the patient would not be satisfied unless the bullet was removed after its position had been determined. Even if its retention in the orbit for years would cause no inflammatory symptoms, the woman's nervous condition, he believed, required the relief which successful operative interference would give. He thought in a body of this size extraction could most readily be done by loosening the attachment of the internal rectus, reattaching the muscle after the bullet had been secured. Dr. Risley thought that it would be unwise to allow the bullet to remain imbedded among the ciliary nerves at the back of the eyeball, but believed that it was of the first importance to relieve the mental condition of the patient by extracting the shot.

FILAMENTOUS KERATITIS.

Dr. W. Zentmayer exhibited a case of filamentous keratitis occurring in a woman, 36 years of age. The affection began at the time of the birth of her last child, 3½ months ago. The upper half of the cornea presented from 15 to 20 filaments in various stages, some as clear apparent vesicles attached to the cornea by a short pedicle, others as a filament 5 mm. in length with bulbous terminal. The patient suffers greatly with fifth nerve neuralgia. Microscopically the filament exhibited, in places, lengthened-out epithelial cells with elongated nuclei and showed plainly a homogeneous fibrillar covering. The distal end exhibited a deeply stained mass in which the twisted end of the filament was quite distinct. The periphery of the bulbous terminal showed a tendency to concentric arrangement.

EXTENSIVE DISTRIBUTION OF CHOLESTERIN.

Dr. Zentmayer also exhibited this case: The vitreous, iris, anterior capsule of the lens, and the bottom of the anterior chamber all contained large numbers of crystals. The patient was 19 years of age and until three weeks previously the eye, which was now the seat of an iridocyclitis, had never been inflamed.

WILLIAM M. SWEET, M.D., Clerk of Section.

Notes and News.

DR. PAUL GULFORD has been appointed ophthalmic surgeon to St. Luke's Hospital, Chicago.

DR. EDWARD JACKSON, Denver, was elected vice-president of the American Medical Association.

THE Ophthalmic Section of the American Medical Association had the largest attendance of any previous meeting, over 230 members registering.

THE Ophthalmic Section of the American Medical Association elected the following officers: Chairman, Dr. C. R. Holmes, Cincinnati; secretary, Dr. Walter L. Pyle, Philadelphia; delegate, Dr. Melville Black, Denver.

NEW QUARTERLY JOURNAL AND REVIEW OF OPHTHALMOLOGY.—Beginning with October 1, *Ophthalmology*, a new quarterly journal of essays, abstracts and reviews, will appear. This journal is owned, edited and published by and for the medical profession from the American Medical Association press by the following staff: H. V. Würdemann, M.D., Milwaukee, Managing Editor; Nelson M. Black, M.D., Milwaukee, Assistant Editor. Chiefs of Departments—Chas. H. May, M.D., New York City, American and English Literature; Casey A. Wood, M.D., Chicago, Italian Literature; Chas. A. Oliver, M.D., Philadelphia, Blencowe E. Fryer, M.D., Kansas City, French Literature; Albert B. Hale, M.D., Chicago, Spanish and Portuguese Literature; Edmond E. Blaauw, M.D., Buffalo, Dutch Literature; Chas. Zimmermann, M.D., Milwaukee, William Zentmayer, M.D., Philadelphia, German Literature; J. Guttmann, M.D., New York City, Hungarian and Austrian Literature; Frank Allport, M.D., Chicago, British Colonial Literature; Prof. Dr. M. Wicherkiewicz, Cracow, Austria, Polish. Russian and Scandinavian Literature; Mitsiyasu Inouye, M.D., Tokio, Japan, Japanese and Asiatic Literature; Claud Worth, F.R.C.S. London, England, English Literature. In addition to these staff editors, there are fourteen other collaborators and well-known foreign correspondents. The staff promises the very best

press work, regularity of appearance, and the highest class of contents. Subscription price is \$5.00 per year.

THE OPTOMETRY AND OSTEOPATHY BILLS DEFEATED. --Much credit is due from the profession in general, and from its members in New York State in particular, to Dr. Frank Van Fleet, chairman of the committee on legislation of the Medical Society of the State of New York and his coworkers, in their successful fight against the optometry bill and the osteopathy bill, whose advocates strenuously sought to have them enacted into law. It is stated that no such persistent and concentrated effort has ever been made in the State of New York for legislation detrimental to the profession, and those who succeeded in defeating the measure had to labor strenuously and persistently. To the credit of many legislators be it said, however, that they were anxious to learn the opinion of the profession in general in the state with reference to the measures advocated, and once having the matter clearly before them there was little hesitancy in their placing their influence on the proper side.—

Lancet & Medical Review.

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

CHICAGO, JULY, 1904

VOL. XIII.

NO. 7.

NEW SERIES

Original Articles.

THE PRACTICAL APPLICATION AND USE OF A SIMPLE TEST FOR THE LATENT CONVERGENCE POWER.

MARK D. STEVENSON, M.D.

Oculist to the City Hospital, Akron, Ohio.

(Illustrated.)

Donders has shown that for each fixed quantity of convergence there is in that same person a definite range of relative accommodation, i. e., the eyes may accommodate within certain well-defined limits without any change in convergence. On the other hand, it is equally true that for each fixed amount of accommodation there may be a certain defined degree of variation in convergence. Both these changes are within certain well-defined and narrow limits. It is also known that the farther the eyes look to either side, the greater becomes the practical difficulty of converging them, i. e., the excess of converging over the necessary accompanying accommodating effort increases in proportion as the eyes turn laterally. This latter fact being true, if there was not a proportionate adjustability between the convergence and the accommodation, there would be either diplopia, due to an improper and insufficient convergence, or a blurring of vision due to excessive accommodation. Hence the necessity for this relative adjustability is quite obvious. Every time lenses are prescribed in cases of ametropia the relation between accommodation and convergence is necessarily changed, therefore a new adjustability of the relationship of these acts is necessary; otherwise diplopia or blurred vision would again result.

The degrees of accommodation and convergence must not only be adjustable to each other within certain limits, but they also must be relative, i. e., the eyes looking at objects at different distances should make relative corresponding efforts to accommodate and converge. It is well known, however, that the efforts to accommodate and con-

vision, or orthoptic diplopia. So-called "lagged" eyes, or eyes which obey the divergent effects of convergence, that is, this power, associated on the one hand with an active power of accommodation, on the other with a considerable presbyopic, or even parietic, deficiency in this power of accommodation.

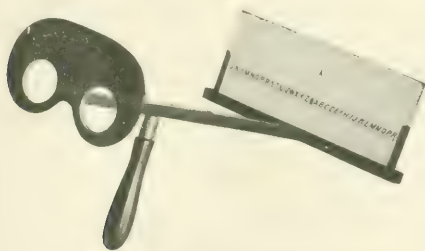
It is well known that the power of accommodation is gradually lost, so that a patient possessing so-called emmetropic or standard eyes will eventually require correcting lenses for this presbyopia. No doubt, in many cases, there is also a change in the convergence power. Under this circumstance the greater effort required to accommodate may stimulate the act of converging for a time, but when correcting lenses for this presbyopia are given, the effort of accommodation which has stimulated convergence is removed; at the same time the reading distance is shortened, thereby requiring a necessarily greater amount of convergence. In other words, these cases often have an insufficiency of the converging power. The lenses prescribed for them eliminate much of the effort to accommodate, thus removing a stimulus for the converging power and at the same time making a demand for a greater convergence. In hyperopia, the convex lenses also relieve the ciliary strain manifested in accommodating, and thus remove some of the stimulus, and probably also lessen the reading distance. In myopia, if the concave lenses are worn for near work, a greater effort is made to accommodate, hence stimulating convergence; however, as the reading distance is increased there is not so great a necessity for it.

Patients of all ages frequently have an insufficiency of this power, even many whose muscles are of normal strength, or approximately so, for distance. Insufficiency of convergence is often found in patients whose muscles are even esophoric for the distance. However, the writer wishes in this paper, so far as is possible, to avoid any reference to the condition of the muscles for the distance, and desires to confine his remarks to their converging power only for near distances.

Various methods may be used in determining the condition of the muscles for near work. Landolt's dynamometer is simple; the near point of convergence may also be roughly estimated by approaching a finger, ophthalmoscope handle, or a vertical line on a card, as close to the eyes as possible without causing the patient to see double images. The result obtained by these means will greatly depend on the patients' effort and the concentration of their attention. However, in actual practice, after having first tested the muscles for the distance, and ascertained if any heterophoria exists, beside testing the duotion powers (especially adduction), it then seems most prac-

used to determine the convergence power for ordinary reading distances. Different men have devised tangent scales for various distances, among them Landolt, Hirschberg and Maddox. The latter has also made an excellent one for use at a distance of ten inches.

The writer has devised a somewhat simplified scale, one more readily understood by the patient. It is to be used at a distance of fourteen inches, indicating in degrees the amount of convergence power which is present at that given distance, without any effort being made to maintain binocular single vision. In the other tests (excepting the Maddox rod for near work and the cover test, which are good but impracticable, and also Von Graefe's dot and line test) an effort is made to maintain binocular vision. It is well to know the extent of convergence power which this effort involves, just as it is helpful to know the amount of adduction and abduction present.



Instrument made by F. A. Hardy & Co., Chicago.

But this test which I am about to describe indicates more or less properly the latent balance of the eyes for the average reading distance, while no effort is being made to maintain binocular vision, i. e., in their position of repose under the stimulating influence of the proper accommodative effort for that given distance.

If this scale be held at a distance of fourteen inches from the eyes and parallel to the line between their centers of rotation, with a 14° prism, base down, before the right, the degree of latent convergence or divergence of the eyes for a distance of fourteen inches (reading distance) may be found, while the eyes are accommodating for this distance. If the patient has sufficient vision in each eye, two images of the arrow and letters, one above the other, will be seen. The examiner should ask the patient if the lower arrow points directly to the upper, and if not, then to which letter in the upper line the lower arrow does point.

If it points to one of the slanting or inclined letters on the right side of the scale, viz., A, B, C, D, etc., it indicates a latent insufficiency of convergence or a tendency for divergence at a distance of fourteen inches. If it points to one of the straight capital letters, e. g., Z, Y, X, W, on the left side of the scale, it indicates latent excess of convergence, or a tendency for the eyes to turn inward, for a distance of fourteen inches. The large letters may be readily seen by those who would be unable to distinguish the small figures. When the name of one of the seven large letters found only on one side of the scale is mentioned, the examiner immediately knows whether there is an excess or insufficiency of convergence present. The other letters found on either side of the scale are easily distinguished, the slanting or inclined ones on the right side indicating a converging insufficiency, and the straight capitals on the left indicating an excess of convergence.

The small numerals below the letters and line indicate in degrees the amount of excess or insufficiency of this convergence. Patients should look closely at the numerals, in order that the eyes may accommodate, as a certain amount of convergence is always associated with a relative amount of accommodation. Of course, the proper lenses should be before the patient's eyes when making this test, in order that the usual amount of accommodative effort will be made.

If the lower arrow points to the slanting letter B, it indicates 2° of lateral insufficiency of convergence; or, in other words, 2° of divergence for a distance of fourteen inches. A 4° prism base would be required before either eye to make the lower arrow point directly to the upper. It takes a 2° prism to effect 1° of lateral displacement on the scale, so that the number of degrees marked on the scale should be multiplied by two, in order to find the strength of prism that would give the same lateral displacement. The writer has made a simple appliance that holds the card and two 7° prisms, the base of the right being down and of the left up. It is inexpensive and saves much time in properly adjusting the prisms, which is very important. It takes, at least, one-quarter of a minute to get the best results.

In patients whose visual axes were parallel, having muscular balance for the distance, the writer has usually found 2° to 3° of latent insufficiency of convergence, so that he has come to consider this amount of divergence as about normal for a distance of fourteen inches.

If a very high degree (10° or more) of insufficiency of convergence is found, especially if associated with exophoria for the distance and weak adduction, in which case the patients complain

after reading, writing, sewing or long-continued use of the eyes for near work, thus giving rise to various asthenopic symptoms, viz., eyeache, headache, dizziness, etc., one or all of the following means for relieving the same may be tried:

1. Decenter convex lenses in or concave out.
2. Make the reading distance a little farther than usual from the eye (fifteen or even sixteen inches) by weaker convex or stronger concave lenses, unless the patient's vocation demands a closer working distance.
3. Use proper prism exercises with strong prisms, bases out, so as to increase adduction and, at the same time, the strength of convergence by exercising the muscles that turn the eye in.
4. Place the requisite prism, base in, before one or both eyes. As a rule, the strength of the prism should not be more than one-half the number of degrees of divergence. The strength of the prism needed depends largely on other factors, the condition of the muscles for the distance, the adduction power, etc.
5. Operation, either partial tenotomy of the external rectus, or slight advancement of the internal rectus. These operations should only be undertaken in cases of high degree of insufficiency when associated with exophoria for the distance, strong abduction and weak adduction.

. Patients who frequently look to the side, such as bookkeepers, who look from one page or book to another, moving their eyes laterally a great deal—movements which require strong convergence effort—especially should be aided by the means above described, unless they have good convergence power and strong adduction.

If a small degree of insufficiency is found, it is sometimes wise to decenter convex lenses in and concave out, but seldom necessary to combine a prism with the lenses. If the patient experiences distress with the lenses or does not get the desired relief, it is always advisable to try proper prism exercises. The results are frequently flattering.

If there is a high degree of excess of convergence found at the different examinations, especially if combined with esophoria for the distance and strong adduction power (and the eyes are distressed from this cause, which is unusual), then convex lenses may be decentered out and concave ones in. It is nearly always advisable to give such patients lenses which shorten the reading distance to thirteen inches, or even twelve, providing no contraindication exists, such as a vocation demanding lenses to see at a greater distance.

REPORT OF A CASE OF BILATERAL DISLOCATION OF
THE CRYSTALLINE LENSES INTO THE
ANTERIOR CHAMBERS.

L. W. WOODRUFF, M.D.,

Professor of Ophthalmology, in the Chicago Eye, Ear, Nose and Throat College, and
Surgeon at the Illinois Children's Eye and Ear Infirmary.

JOURNAL OF OPHTH.

(Illustrated.)

This patient, Lillian K., aged 9, was admitted to the Eye and Ear Infirmary, Jan. 14, 1904, with the statement from her mother eye trouble in either her own or her husband's family. She has had in delicate health since she was eight months old, having had a severe bronchitis at that time. The mother says she knows of no eye trouble in either her own or her husband's family. She has had eight children. All are living, and all are in good health, except the patient. She was born at full term and appeared to be a normal child. She has had whooping cough and measles. The mother had never noticed anything wrong with the girl's eyes until she was about five years old. Then she noticed that she would hold objects very close to her eyes. Nothing was done for her until she was 8 years old. Then she was taken to a hospital for treatment. Since then she has had concave glasses fitted to her eyes, and drops and salves have been prescribed by several doctors. At times she has had severe headaches.

The general appearance of the patient is that of a weak, poorly-nourished individual, with stooping shoulders and flat chest. She holds her head down, perhaps on account of photophobia, or because she can see better with her head in that position. With the right eye she counts fingers at two feet. With the left eye she counts fingers at six feet.

Both lenses are in the anterior chambers, and the pupils are dilated. There is some irritation of the left eye. Fearing that if an operation were attempted the lenses would escape into the vitreous, eserine was instilled into each eye to contract the pupils. The lens in the right eye disappeared into the vitreous. The lens in the left eye remained in position, but the tension became elevated and was relieved by a paracentesis performed by Dr. Beard during my absence. I tried no more experiments with eserine; the tension was soon normal, and the lens in the right eye returned to its position in the anterior chamber. Although it would occasionally be dislocated, it was most of the time to be found in the anterior chamber.

*Read before the Chicago Ophthalmological and Otological Society, May 10, 1904.

March 4, 1904, I operated on the left eye, and, after a short time, an incision was made with the keratome through the cornea into the lens, which remained in position. A considerable portion of the lens was extracted through this incision. The remaining portion is being very slowly absorbed. I report this case on account of its rarity. All who have examined this case say that it is the only one of the kind they have ever seen. De Schweinitz, in *THE OPHTHALMIC RECORD* of June, 1903, reports a case in which the cataracts were in the pupillary areas.



REPORT OF A CASE OF SYMPATHETIC OPHTHALMIA.

The patient, Mary Q., a school girl, aged 11 years, was admitted to the Illinois Charitable Eye and Ear Infirmary, Oct. 19, 1903, with a purulent conjunctivitis of the right eye. Three days before admission the eye had become swollen and painful. This condition grew rapidly worse, and was accompanied by a purulent discharge. A microscopic examination showed the presence of gonococci in both the conjunctival and vaginal secretions. Her vision in the right eye was almost nothing, on account of the overhanging of the chem-

otic conjunctiva, although the visible portion of the cornea was clear. At this time the left eye was apparently normal, and was sealed with a watch crystal. Hourly irrigations of permanganate of potash solution, 1/2,000, 25 per cent. solution of argyrol every four hours, and cold applications were instituted for the affected eye. Two days after admission the lower part of the cornea became hazy. Hot applications and atropin were ordered.

October 22, three days after admission, the left eye showed slight involvement and was put on the same treatment. Applications of 12 per cent. of nitrate of silver were also made to the palpebral conjunctiva of the right eye every alternate day. An ulcer developed in the lower part of the cornea of the right eye, which perforated October 31, causing a prolapse of the iris, which was excised. From this date there was a gradual subsidence of the inflammatory process, and on Nov. 24, 1903, the patient was discharged from the house, with instructions to come to the outdoor clinic for further treatment. Her vision at this time was 5/120 in the right and 20/20 in the left. There was a slight conjunctival discharge, containing no gonococci. The poor vision in the right eye was accounted for by the prolapsed iris adherent to the corneal cicatrix and a cloudy lens. There was no other symptom at this time that would lead one to suspect a uveal involvement. She was under the care of Dr. Tivnen in the dispensary from Nov. 24, 1903, to Dec. 16, 1903, when the doctor referred her back to the hospital, with the following statement: He had made an application of nitrate of silver to the conjunctiva of the left eye, from which there was still some discharge. This resulted in some pain, which the doctor relieved by the instillation of a few drops of a 4 per cent. solution of cocain, instructing the girl to wait until the pain was relieved. After some length of time the doctor examined the eyes again and found that the pupil in the left eye was irregularly dilated, and, suspecting sympathetic disease, he referred the case to me. The length of time between the perforation of the corneal ulcer in the right eye and the discovery of sympathetic uveitis in the left was six weeks. Examination on the date of her second admission to the hospital showed the following conditions: With the right eye she could count fingers at two feet by artificial light. The lens was opaque, and the iris adherent to the corneal opacity. There was no external symptom of ciliary involvement: no pain nor tenderness.

The vision in the left eye was 20/60. The pupil irregularly dilated. There were present the characteristic punctate deposits in

the lower part of the cornea, in Descemet's membrane. Ophthalmoscopic examination did not reveal any changes in the fundus.

After consultation with several of my colleagues at the infirmary, enucleation was decided on for the right eye. This was performed under ethyl chlorid, Dec. 25, 1903. Some delay in operating was caused by the difficulty encountered in gaining the consent of the parents.

Treatment.—Atropin and hot applications (dry heat) were the only local treatment in use at this time. Oil of wintergreen in five-drop doses, increasing up to twenty drops, was given internally. Mercurial inunctions were made daily.

Jan. 8, 1904. Her vision was still 20/60.

Jan. 15, 1904. Her vision was decreasing. Calomel, 1/10 gr., every four hours, was substituted in place of the mercurial inunctions.

February 1. Vision had fallen to 20/200. Subconjunctival injections of normal salt solution were made every alternate day. Mercurial inunctions were resumed. Iron and quinin were also given internally. Cocain, 10 per cent., and atropin, 4 per cent., in the form of an ointment, have been used once daily.

The condition at the present time is as follows: V.=8/120. The pupillary margin of the iris is adherent to the lens. The central portion of the lens is clear, so that a considerable reflex is obtainable with the mirror. The anterior chamber is shallow, owing to the ciliary margin of the iris being pushed forward. The tension is elevated, and has been elevated for a considerable time, although there are periods of time when the tension is more nearly normal.

The report given me by the pathologist, Dr. Brown, from the examination of the enucleated eye, shows fibrinoplastic uveitis.

REMARKS.

This case is of interest from the fact, first, that the gonococci was the first factor concerned in the production of this unfortunate condition. Possibly it could be the whole cause, as in gonorrheal iritis, although there were no signs of gonorrheal rheumatism. Second, it illustrates that type of sympathetic disease in which there are no premonitory symptoms. Third, it brings up the question of the propriety of removing the exciting eye while there is still slight vision, if the sympathizing eye is already involved.

The treatment since February 1 was along the lines laid down by Schirmer, in the new Gräfe-Saemisch Hand-Book.

A CASE OF TRIPLE RUPTURE OF THE CHOROID COAT

J. DAVIDSON LEWIS, M.D.

ST. PAUL, MINN.

(Illustrated.)

Mr. A. L. P., a healthy, athletic man, 38 years of age, consulted me March 7, 1904, concerning the condition of his right eye, which thirteen hours previously had been injured by a severe blow from the fist. His family and personal history were excellent, and there was no indication of any previous ocular trouble. Urinalysis gave



FIG. 1. Fundus of the choroid coat 19 hours after injury.

negative results. There was a linear cut, three-quarters of an inch long, parallel to and one-quarter of an inch below the eyebrow, and the lids were much swollen and ecchymotic. There was no discoverable fracture of the orbital bones. Ocular conjunctiva was slightly congested. The pupil measured 5 mm. and reacted very slightly to direct stimulus. I was unable to discover any notchings at the pupillary margin of the iris, a condition which so frequently attends severe ocular traumatism. The aqueous was clear, as were the cornea, lens and vitreous. The tension was normal. There was slight photophobia, but no pain at any time. Vision was reduced to 2/200. The left eye was normal.

The vitreous being clear, the fundus presented an interesting oph-

thalmoscopic picture (Fig. 1), which is as it appeared nineteen hours following the injury. There were three very dark hemorrhages (choroida) with sharp borders, one situated one-quarter disc diameter from the papilla, and two on the temporal half of the fundus; the smaller one, one-quarter disc diameter from the nerve, and one far out, three and one-half disc diameters from the papilla. The retinal vessels traversing the hemorrhagic areas were not visible. In addition to these hemorrhages, there was a large retinal extravasation upward and slightly upward from the center, and blood was plainly visible in the macula, which was beautifully crimson in the central portion, shading off to a pinkish tint, where were visible several small, glistening white spots. The vessels were normal, but the



Fig. 2. Top of fundus of the eye, four days later.

disc slightly hyperemic. The marked visual impairment rendered the mapping of the visual field very difficult, and the fatigue occasioned by my prolonged study of the fundus decided me to postpone this part of the examination. On the following day I was unable to notice any changes in the conditions of the eye ground, and as the vision was still greater reduced (shadows), I was unable to measure the field until eight days later, when, the vision having improved to 10/200, I took the field and found large scotomata corresponding in a general way to the breaks noted.

The case was under my observation extending over a period of four months, during which time I observed the following condition

of the hemorrhages; that of the retina and macula faded away at the end of the tenth week, but the choroidal hemorrhages absorbed more slowly and did not disappear until three weeks later, becoming gradually yellowish white in appearance.

Status Praesens.—(Fig. 2.) Four months following the injury the eye ground presented a picture of three typical choroidal ruptures, the margins of which were entirely free from pigment granules. About the macula were visible several small whitish spots (probably Gunn's dots) remaining, to which the writer attaches no particular pathologic significance. The vision at present equals 20/100, unimproved by lenses. The pupil is normal in size and responds actively, directly and consensually. The perimeter registers a shrinkage of the peripheral field, equally 10° , and scotomata corresponding closely to the ruptured areas, but the retina responds normally at the sight of the previously existing hemorrhage. The color sense was proportionately impaired.

The treatment consisted of rest and atropin instillations, to which the pupil promptly responded.

The elements of interest in this case were the clearness of the media, especially the vitreous; a choroidal rupture situated in the nasal half; a horizontal rupture of the choroid; absence of pigmentary deposit about the margins of the rupture; the condition of the macula, and the accompanying retinal hemorrhage.

EPISCOPAL EYE, EAR AND THROAT HOSPITAL OF WASHINGTON.—The quarterly meeting of the board of governors of the Episcopal Eye, Ear and Throat Hospital was held May 23 in the new building just completed, at 1147 Fifteenth street Northwest. Dr. H. P. Blair made reports for the finance and building committee. He stated that the cost of building and furnishing the new hospital would be about \$80,000, and that stocks and securities had been recently received from the estate of the late Mrs. Ellen Parke valued at about \$16,000. Mr. W. M. Poindexter submitted a design for a bronze tablet to be erected in the hospital in memory of Mrs. Parke, which was accepted. Dr. William P. McKee was appointed resident physician of the hospital for the ensuing year.—*New York and Philadelphia Medical Journal*.

DR. THOMAS A. WOODRUFF read a paper on "Squint, and the Modern Method of Treatment" before the Iowa State Medical Society at its last meeting, in May. Before the same society, Dr. Lee Wallace Dean of Iowa City read a paper on "The Treatment of Diseases of the Eye, and Refraction by the General Practitioner."

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

CHICAGO, JULY, 1904

VOL. XIII. No. 7. NEW SERIES

Editorials.

WHEN AND HOW SHOULD WE OPERATE FOR CATARACT?

It is very certain that the last ten years has seen a departure on the part of ophthalmologists from the old rule of not operating on cataracts until they are "ripe," but it does not seem to the writer that the fact is very prominently brought out in our literature, certainly not till very recently in our text-books. The first positive statement on this subject to my knowledge was by Weeks (Trans. Sect. on Ophthal., A. M. A., 1895), who found, in demonstrating the operation on the cadaver, that in subjects past middle life the lens could be extracted practically whole, even when entirely clear. Given a patient of 60 or more, with nuclear opacities in both eyes, it is certainly a harsh sentence to pass on him to condemn him to the years of inactivity that must intervene between the time that the opacities interfere with useful vision and the time when one of the cataracts mature. The fact should be made widely known, emanating from those whose experience justifies them to speak authoritatively, that such a patient can be subjected to operation with just as good a chance of success, when the cataract is immature, as if he is compelled to wait till a later date, when his physical condition has become less good by reason of advancing years, enforced physical inactivity and the possible, even probable, development of lesions of the vascular system and kidneys, so every common in those of advanced years. It has been frequently noted with what rapidity men who have led active lives, mentally and physically, deteriorate when they retire from active business, and this is what cataracts compel them to do long before they are mature. The writer can not claim more than a very modest experience in cataract operations, and naturally a small one with the class of cases under consideration, but in operating on such cases, in whom an ophthalmoscopic examination of the fundus was still possible, and in whom vision of

20, cc. remained, the success has been fully as good as that following extraction of mature cataracts, and the results very gratifying to both patient and surgeon. Now that irrigation, as a step in the operation, is meeting with such favor, the operation on these cases can, with this addition to the usual technic, be undertaken with even more assurance. There is another thing to be considered. We occasionally hear of a patient with glaucoma, atrophy, or what not, waiting, on the advice of his physicians, until completely blind before consulting an oculist in regard to the treatment of a cataract from which he is supposed to be suffering. If it could be more generally known that maturity is no longer considered a *sine qua non* of operation, such patients might seek advice in time to receive some benefit.

In the performance of the operation in general the writer, as one of moderate experience, addresses himself to others in the same class. There are two features of the operation which, in the writer's hands, are of great value and are made a part of every operation.

The first is the formation of a conjunctival flap at the apex of the corneal incision. It need not be large, and is difficult to accurately gauge, but from 1 to 3 mm. in width is satisfactory. It greatly hastens the crisis in the after-history of operations, closure of the wound, it being very exceptional to find this delayed longer than twelve hours. The only objection that was ever urged against it, the annoyance of the bleeding, can now be overcome with adrenalin, and it seems to me that it should be made as a routine method.

The other step is the mooted question of iridectomy. In any of our large ophthalmic hospitals, when the work is done by skillful and experienced men, the proportion of prolapse, with all its inconvenience and disadvantages, is very large. To those of us whose clientele, even charity patients, is largely our own private practice, and not the gathering of a public clinic, it is no small matter to have the patient submit to one operation, and a few days later have to undergo a second one, and probably under general anesthesia, for excision of the prolapsed iris. As no one has yet devised a method for preventing prolapse, or at least anterior synechia, the combined operation would seem the wisest plan. I am sure that the after-course of such operations will be more gratifying, even if the ultimate visual results are no better.

E. C. E.

Correspondence.

TUCKING THE RECTI MUSCLES.

CHICAGO, June 20, 1904.

To the Editors:—In addition to Dr. Savage's editorial notes in the May issue of the RECORD, I wish to state that, so far as I am concerned, there has been no claim made regarding the priority of the operation for tucking the recti muscles in heterotropia. I have simply stated that I first operated in 1886, and reported the operations in 1888. The enclosed letter from Dr. Wescott will, I think, substantiate my claim to have operated after this manner, at least as early as 1887; it also establishes the fact that Dr. Wescott operated shortly after in a manner similar to the one described by me. The same procedure may have been carried out long before, and by many others:

CHICAGO, ILL., June 4, 1904.

Dr. J. Elliott Colburn, 34 Washington Street, City:

Dear Doctor:—Dr. Savage's letter, published as an editorial in the current number of THE OPHTHALMIC RECORD, recalls to mind the fact that in 1887 you demonstrated your muscle-tucking operation to me, and that in the same year I performed the operation at the clinic at the Central Free Dispensary, as described in your report of cases in THE OPHTHALMIC RECORD, April, 1902. I afterward submitted the patient to you for examination. The result of the operation was not quite satisfactory to either of us, and I have no recollection of performing it again. I am able to locate the time of performing this operation, because I recall positively that it was during my first year of service in the Central Free Dispensary, and I have memoranda showing that that was in 1887.

Yours very truly,

CASSIUS D. WESCOTT.

Regarding the report of the discussion which took place in Cincinnati in 1888, I am informed that the stenographer employed was not able to read his notes, and that no official report was made. Neither Dr. Hotz, chairman of the Section, nor myself, can call to mind the paper in connection with which my report was made. Dr. Jackson, then secretary, was not able to be present, so that minutes were made by two or more secretaries acting *pro tem*. These facts will explain the absence of a proper report of the discussion. Regarding the value of the operation, it is subject to the law of "the survival of the fittest." Very truly yours, J. E. COLBURN.

Reports of Societies.

ABSTRACT REPORT, SECTION ON OPHTHALMOLOGY, AMERICAN MEDICAL ASSOCIATION.

ATLANTIC CITY, June, 1904.

Chairman's Address: "Thoughts Suggested by a Study of the Eye Injuries of Independence Day."

DR. ROBERT L. RANDOLPH, Baltimore.

Dr. Randolph's study was based on the records of four hospitals, namely, the Presbyterian Eye and Ear Hospital, the Baltimore Eye and Ear Hospital, and the Johns Hopkins Hospital, all of Baltimore, and Manhattan Eye and Ear Hospital of New York; also of the New York Eye and Ear Hospital and the Massachusetts Charitable Eye and Ear Infirmary, of Boston. Four hundred and ninety-three cases of eye injury had been placed on record at these hospitals during the last six years, all caused by exploding fireworks.

It was shown that, though the unfortunates were drawn in large measure from the ranks of childhood, some of the most destructive injuries seen were in individuals who had passed unscathed through the heat and turmoil of more than twenty Fourth of July celebrations. For example, there were 15 cases where the ages ranged from 30 to 45, and each of these individuals was left to finish life with one eye. There were 52 others who had gone quite a distance into mature life, two of them being men of 60, and 8 women, each of these being nearly 60 years old, all of them more or less badly injured. The record of the fatalities of last Fourth of July showed that more persons were killed on the one day from explosion of the various kinds of fireworks than were lost on the American side at the battle of Bunker Hill, and nearly five times as many as have died from tuberculosis in Baltimore for any one month during the last ten years, and twenty times as many as the average daily mortality from the same disease in the city of Greater New York, with its population of over three millions. Nearly 300 of the eye injuries recorded in Dr. Randolph's paper happened in Baltimore. Indeed, the object of the paper was to arouse the authorities of the city of Baltimore to a proper sense of the gravity of the situation, and thus pave the way to more satisfactory laws bearing on this question. Of the total number reported in the communication (493), 357 were children and 136 were 21 and over. There were 3 cases where the child was 3 years old, 5 cases where the age was 4, 7 cases where the age was 5, and 1 case where the age was 21½ years, and an infant of 3

months. The average age of the children was 12. Generally speaking, Dr. Randolph said, one of the varieties of firecracker was responsible, though skyrockets and Roman candles were not found to be blameless by any means. There were 110 cases in which the injury was to the right eye, and 52 in which both eyes were injured. The author cited several cases which showed the essentially dangerous character of the practice of setting off fireworks, and concluded by stating that the matter was already before the City Council, and the hope was expressed that in the near future some relief would be seen.

“The Treatment of Purulent Ophthalmia.”

DR. MYLES STANDISH, Boston.

The paper was chiefly a study of the records of the large number of cases of purulent ophthalmia treated in the separate building, isolated from the main structure, in the Massachusetts Charitable Eye and Ear Infirmary, devoted to the treatment of the contagious diseases of the eye. The author spoke of the importance of a bacteriologic examination, and referred to the several infecting organisms, saying that purulent ophthalmia is due in the majority of instances, 60 to 65 per cent. of the cases, to gonorrheal infection. He compared the relative value of the local applications—solutions of bichlorid of mercury, nitrate of silver, protargol and argyrol—and the following conclusions were drawn: First, that the newer silver salts are more easily applied, safer in use, and better results are obtained than with nitrate of silver; second, that in cases of ophthalmia neonatorum, either protargol or argyrol is satisfactory; third, that in case of gonorrheal ophthalmia in the adult the results obtained when the treatment is begun early are approximately the same with either preparation, but when once the cornea is involved, protargol appears to have given better results; fourth, that the application of cold during the stage of swelling is a dangerous procedure and should be abandoned.

Discussion.—Dr. Casey A. Wood (Chicago) thought the prevention of ulceration and infection of the cornea the first thing to be considered, and believed that nitrate of silver had done much harm in the past because of its irritating qualities. He considered it very important, too, to use an application that would not produce crying and consequent congestion of the lids, as nitrate of silver does. He differed with the author as to the application of cold, considering it very beneficial in making the patient more comfortable. He preferred argyrol to protargol, and believed it in every sense a better preparation.

Dr. Maitland Ramsay (Glasgow, Scotland) thought gonorrheal ophthalmia more rare in Scotland than here, though ophthalmia neonatorum was always with them. He had always thought the cold applications helpful in relieving the suffering, but if the cases in which it is used are attended with greater destruction of the cornea he thought we should consider carefully the advisability of abandoning it.

Dr. A. W. Calhoun (Atlanta) referred to the danger of argyrosis and to the use of weak solutions of the salts in ulceration of the cornea, whether due to conjunctival infection or not.

Dr. F. C. Todd (Minneapolis) reported his results with the use of protargol and argyrol in 30 cases, and, to show the comparative value of the two salts, he also had undertaken the experiment of using protargol in one eye and argyrol in the other, finding that the eye treated with protargol progressed faster and got well quicker. He used the salt in glycerin.

Dr. John E. Weeks (New York) thought cleansing of the sac should be very frequent, but very carefully done, just opening the lids and allowing the solution to flow in. He was in accord with the author as to the use of the newer salts. He advocated the use of cold to a certain extent, believing that the patient was given a high degree of comfort by the ice-compresses.

Dr. Hiram Woods (Baltimore) referred to the dangers of the mechanical cleansing of the eye and condemned the method of using cotton on probes for this purpose. He had advocated the use of cold as promoting the comfort of the individual, but thought that if, as Dr. Standish said, the cases do better without it, its use should be abandoned. He preferred the use of argyrol because of its non-irritating quality.

Dr. W. H. Leaman (New York) advocated the use of cold, and had even used it after the cornea was involved, and asked if cold did not lower the temperature sufficiently to affect the growth of the organisms, how could it be dangerous to the nutrition of the cornea, as suggested by Dr. Standish?

Dr. J. L. Thompson (Indianapolis) referred to the earlier teaching that cases of ophthalmia neonatorum could hardly be lost, and thought a great majority of cases would be saved by the mildest treatment imaginable.

Dr. Richey (Washington) had tried all the newer preparations, and was still wedded to the nitrate.

Dr. Parke (Harrisburg) treated by lifting the lid and washing out with the aid of a large pipette, following this by dusting nosophen, which controlled the discharge promptly.

Dr. Nelson M. Black (Milwaukee) advocated the use of protargol or argyrol in an oily medium as a lubricant that tended to prevent abrasion of the cornea. He used it in cod liver oil.

Dr. Mark Stevenson (Akron) thought any irrigating apparatus tended to remove some of the epithelium, and preferred using just a pledget of cotton dipped in the solution.

Dr. Leartus Connor (Detroit) had found in comparative tests that the number of gonococci diminished much more rapidly with the use of argyrol than with other salts. He employed heat habitually instead of cold.

Dr. E. E. Holt (Maine) thought cleanliness the most important consideration, and used a Davidson syringe for the purpose of washing out the sac.

Dr. Standish (Boston), in closing, said he had never seen a case of argyrosis from either protargol or argyrol in acute ophthalmia. He considered much handling in cleansing the eye dangerous, and thought a properly trained nurse for these cases as important as in any case in medicine. He said, in reply to Dr. Leaman, that, as the cornea did not derive its nutrition from direct blood supply, but through the lymph channels, anything that delayed the passage of fluid through these channels increased the danger to the cornea.

"Post-Operative Infection of the Eye."

DR. J. A. WHITE, Richmond, Va.

The paper treated of the causes of post-operative infection and the lessening frequency of this complication during recent years, and the supposed reasons for this favorable reduction of operative risk. Reference was made to the ante-operative and post-operative methods of sterilization and prevention of infection, and of the best measures for limiting the process when it occurs. The writer uses vaselin as a menstruum instead of water, and bichlorid as the chemical, making an ointment of 1 gr. of bichlorid, 5 gr. sodium chlorid and 6 ounces of vaselin, the salt being added to prevent albuminoid deposit. The vaselin is boiled, the bichlorid and salt dissolved in a few minims of water and added. After boiling, this 1-3,000 bichlorid vaselin is put away for use.

Discussion.—Dr. S. D. Risley (Philadelphia) referred to post-operative infection as hanging like a cloud over the horizon of every experienced surgeon. He thought it reasonable that bichlorid of mercury or any agent of that kind placed in the sac in an unctuous medium would have a longer opportunity for effect, but he believed that our methods of sterilizing the field of operation often produced injury, particularly to the delicate tissues of the eye, the free use

of bichlorid producing a disturbance of the integrity of the corneal epithelium. For a good while he had been avoiding the use of these agents, using only boracic acid. Where there was disease of the lachrymal sac or passages, he treated them with an antiseptic solution, dilating the punctum and washing out the sac with the aid of the lachrymal syringe. He thought infectious process often might be due to the spreading of germs over the field of operation by those around the operator coughing, and thought more care should be taken in guarding the field of operation from unexpected sources of infection.

Dr. Herman Knapp (New York) called attention to the fact that sometimes there might be seen an exudate in the anterior chamber, after extraction, that looked like infection—especially to be seen in syphilitic subjects. It differed from real infection in that the edge of the lid is not swollen. A favorable prognosis could be given in this condition. As to actual infection, it generally came from the lachrymal sac, and, to be safe, it should be extirpated.

Dr. Arlt (Plainfield) had two cases of this spongy exudate referred to by Dr. Knapp in which the results did not bear out the prognosis.

Dr. J. A. Lippincott (Pittsburg) said the danger of infection might be greatly lessened by careful cleansing of the nasal passages with permanganate of potassium solution. Since using Dr. White's method for several years, he had not seen a case of suppuration, and he considered the idea theoretically correct, and in his experience it had been successful. Beside remaining in the sac and perpetuating its sterile condition, the ointment acted by partially blocking the canals and preventing infection from that source.

Dr. E. E. Holt (Maine) had practiced the method, which he learned from Dr. White several years ago, and had had but one suppuration in 200 cases. He favored the method, and used it in every case.

Dr. C. R. Holmes (Cincinnati) followed the method of extirpating the sac and had abandoned the idea of trying to cleanse the mucous membrane that had not shown inflammation prior to operation, believing that it only set up an irritation and opened a way for infection.

Dr. V. T. Churchman (Charleston) supported Dr. White's method, which he had learned from the doctor some years ago while on a visit to Richmond. Had used it extensively ever since, and with no infections.

Dr. L. J. Borsch (Philadelphia) thought it important to cleanse

and sterilize the lashes prior to operation, and deprecated the idea of using strong solutions for sterilizing the sac.

Dr. Butler (Buffalo) used solutions of 2 or 3 per cent. protargol in the eye just prior to operation.

Dr. White (Richmond) said, in closing, that he feared the subject of treatment of post-operative infection, when it occurs, had been left as much in the dark as ever, as that point had not been touched on by any of the gentlemen in their discussion.

“Tumors of the Orbit.”

DR. H. V. WURDEMAN, Milwaukee, Wis.

The paper presented a new classification, in accordance with the demands of modern pathology. Tumors were considered in the sense of swellings—(1) neoplasms, (2) inflammatory swellings, (3) anomalies. He called attention to neoplasms beginning in the eyeball, briefly describing them, and to primary orbital neoplasms, which were classified as (1) primary to the mesodermal tissues, (2) primary to bony walls of orbit and pia, (3) primary to optic nerve and sheaths, (4) primary to lachrymal gland, (5) extending from skin, conjunctiva and sinuses, (6) metastatic tumors, (7) teratoid tumors and cysts, (8) angiomas, (9) pulsating exophthalmus, (10) orbital inflammations, primary and metastatic; (11) orbital protrusions from neighboring sinuses, (12) orbital anomalies. The paper was illustrated by about two hundred photographs and specimens. The photographs and specimens were shown by means of the Hoy opaque projector, by which the color details are preserved.

Discussion.—Dr. C. S. Bull (New York City) said that if the orbital tumor develops in the orbital tissue proper, sheath of the nerve or periosteum, and is encapsulated, the prognosis is good, but if not encapsulated, no matter what the origin, the prognosis is bad. He thought each operation but hastened the return of the growth, and by so much shortened the life of the patient. He had seen improvement follow the use of the x-ray, and felt justified in using it in all cases, if only for the relief of pain.

Dr. E. C. Ellett (Memphis) reported two cases of orbital growths—one a melanotic sarcoma, and the other a bony cyst.

Dr. L. Webster Fox (Philadelphia) had treated a case of sarcoma of the orbit with the x-ray, producing cure, with no recurrence. He believed in so-called inoperable cases it was useless to operate, as it increased the tendency to metastasis. The x-ray prevented this tendency to metastasis, and should be used.

Dr. J. F. Klindinst (York, Pa.) described a case of sarcoma of the orbit, in which, at operation, the floor of the orbit was removed.

Dr. J. O. McReynolds (Dallas, Tex.) asked if any success had attended the use of the *x*-ray in glioma.

Dr. C. F. Clark (Columbus) had had success with the *x*-ray in cases of sarcoma.

Dr. Würdemann (Milwaukee) said, in closing, that the lesson to be learned was that benign tumors may be removed generally without loss of the eye, but generally with loss of function; that all tumors of the orbit, when small, should be operated on and later subjected to the *x*-ray; that benign tumors should be extirpated if they interfere with function; that the *x*-ray was often beneficial without operation, and that it seemed to retard the growth of glioma.

“A Case of Pulsating Exophthalmos; Successive Ligation of Both Common Carotids; Death.”

DR. HOWARD F. HANSELL, Philadelphia.

The paper reported the case of a young woman who presented all the signs and symptoms of arteriovenous aneurism in the cavernous sinus. The affection developed on the left side in consequence of a severe blow by the handle of a heavy knife received on the right side of the face. She suffered constant pain in the orbit, diplopia, and a never-ceasing subjective noise, aggravated when in the recumbent position. The exophthalmos slowly increased, the eyes became more and more immobile, the noise distressing, the pain severe, notwithstanding treatment by potassium iodid and perfect quiet. The common carotid on the left side was ligated. Immediately after the retinal arteries faded away and were invisible with the ophthalmoscope. Blood pressure by the Riva Rocci apparatus rose, and the rise was maintained after operation. The relief, which was prompt and complete, continued for a month, when the symptoms returned with renewed violence. The vision of the left eye, which had remained unaffected, became involved, and numerous retinal hemorrhages were observed. Second operation performed six weeks after the first; the common carotid of right side tied. There followed edema of the face and brain, convulsions and death in five days. The writer referred to six reported cases of ligation of both common carotids, of which five had been cured or improved, and one died, and to the treatment by ligation as compared with digital compression.

“Intermittent Exophthalmos, with Report of a Case.”

DR. WILLIAM C. POSEY, Philadelphia.

The paper presented a case of intermittent exophthalmos, illus-

trated by means of photographs projected on the screen. Both eyes usually normal, but under violent muscular strain the left eye slowly protruded, and other signs showed venous engorgement of orbit. Symptoms rapidly disappeared on cessation of cause. Absence of bruit or pulsation in orbit, or of any visible or palpable tumor. No ophthalmoscopic changes. History of intermittent exophthalmos. Its great rarity; 46 cases in all literature. Symptomatology: Limitation to one eye. Ophthalmoscopic appearance negative in most cases. Diagnosis easily made from other angioma of orbit by absence of bruit and pulsation and the transient character of exophthalmos. Etiology obscure. No autopsy, and hence no pathologic anatomy. Most authorities believe cause is dilatation of orbital veins from individual predisposition to weakness in walls of vessels and by relaxation of orbital fascia. Disease often congenital, but has followed blows. Prognosis rather favorable. In a few cases vision affected by retinal hemorrhage or by atrophy of optic nerve consecutive to hemorrhage into orbit, but vision usually remains good. Fellow eye does not become affected. Degree of proptosis does not increase greatly with time. Treatment unsatisfactory. Electrolysis may be essayed or excision of varix with the knife, if the tumor be accessible. There was complete bibliography.

Discussion.—Dr. C. R. Holmes (Cincinnati) reported a case which he believed to be due to some pathologic condition of the orbital veins. The one-sided character, he believed, argued in favor of a local cause. He thought, with Posey, that there must be congenital predisposition of the orbital veins on the affected side.

Dr. L. J. Borsch (Philadelphia) had a case last year, but had not considered that the condition was so rare. He used the tincture of gelsemium in treatment, with good result.

Leaman (Milwaukee) referred to four cases in which ligation had been done with varying results.

Dr. W. H. Wilder (Chicago) thought the lesion might sometimes be a syphilitic one, and referred to several cases.

Dr. G. C. Savage (Nashville) believed these cases were angioneurotic edema, and referred to several cases he had seen.

Dr. Walter Pyle (Philadelphia) related the history of a case secondary to angioneurotic edema, in which death resulted from edema of the glottis.

Dr. Robert L. Randolph (Baltimore) believed the operation contraindicated in persons over 60. Referred to a case he had observed a month ago, in which death followed within twenty-four hours after operation.

Dr. Posey (Philadelphia), in closing, said he did not believe any of these cases of his were angioneurotic edema.

“Diaphoresis and Diaphoretics in Ophthalmic Therapeutics.”

DRS. HIRAM WOODS, Baltimore, and T. A. WOODRUFF, Chicago.

Separate papers were read by these authors, and the following deductions were drawn from the physiology of diaphoresis and action of diaphoretics, regarding the class of ocular lesions to which such treatment should be applicable: 1. Congestive. 2. Exudative lesions of such structures as are intimately connected with blood vessels. 3. To promote elimination of toxic products. Ocular disorders in which they are indicated are, (1) uveitis, especially certain forms of choroiditis; (2) iridic congestion or iritis; effect, so far as observed by the writers, is not marked after formation of synechiæ; (3) retinal detachment dependent on choroidal exudate rather than accompanied by degenerative or cicatricial changes, as in myopia; (4) certain forms of exudative retinitis; (5) possibly hemorrhagic orbital lesions; narration of an observation in which it seemed to have a marked effect; (6) toxic amblyopia. Difficulty in estimating the value of such agents, when improvement follows withdrawal of toxic agent. Treatment by this method often disappointing when one would expect, *a priori*, good results. Method of application. Dosage. Good results with small doses.

Discussion.—Dr. W. B. Marple (New York) warned against undue therapeutic enthusiasm, and referred to the unwillingness of patients to undergo the treatment. He advocated the practice of Dr. Kipp (Newark) of sending the patients to a Turkish bath. He agreed with the essayists as to the conditions in which diaphoretics are useful—all forms of uveitis of acute character. He had found the use of the salicylates, and recently of aspirin, beneficial. In toxic amblyopia diaphoresis may be of benefit after withdrawal of the poison. Dr. W. L. Pyle (Philadelphia) protested against the promiscuous employment of hypodermics of pilocarpin, and related a fatal case. In his own practice he employed direct heat and Dover's powders. He did not like the use of massive doses of the salicylates. He also employed warm atropin solutions in these cases. Dr. Timberman (Columbus) agreed with the writers and thought some were not enthusiastic enough about these remedies. Dr. Wendell Reber (Philadelphia) defended the use of pilocarpin, and did not consider it dangerous if used carefully; he believed there was no more valuable adjunct to the treatment than pilocarpin. Dr. S. C. Ayres (Cincinnati) recognized the value of diaphoretics. preferred the use of the bath cabinets. Dr. Leartus Connor (De-

troit) was very favorable to the use of hydrotherapy and referred to the establishment in Boston, by a number of physicians, of a Turkish bath to which they could send their patients. Dr. E. E. Holt (Maine) cited a case of detachment of the retina in which pilocarpin produced a complete cure. Dr. L. J. Borsch (Philadelphia) was somewhat afraid of the promiscuous injections of pilocarpin. Cases of toxic amblyopia, however, stood it well. Dr. F. Buller (Montreal) defended the use of salicylates in inflammatory conditions of the uveal tract, citing several cases in which they proved of value. Dr. J. L. Thompson (Indianapolis) believed that no one short of a Mrs. Eddy could bring about re-attachment of a detached retina, and asked in what way gelsemium could act in these cases. Dr. Hiram Woods (Baltimore), in closing, said he did not mean that there should be no enthusiasm, but when claims were made that pilocarpin or sweats would cure atrophy of the nerve or choroid, it was nonsense. He agreed with Pyle as to the danger of pilocarpin, and thought there was special susceptibility in some cases. Care should be exercised in its use, and the patients kept on their back in bed. Age also should be considered, and small doses used at first. Dr. T. A. Woodruff (Chicago) said, in closing, that he had not seen any bad effects from the hypodermic use of pilocarpin. He had found the cabinet bath at home unsatisfactory. In the hospital better results could be attained with it.

“Is Bilateral Operation for Cataract Ever Justifiable, and, If Not, How Soon After the Operation on the First Eye Is It Safe to Extract the Second Cataract?”

DR. A. W. CALHOUN, Atlanta, Ga.

The author considered bilateral operation for cataract never justifiable under any circumstances, for the following reasons: The danger and numerous sources of infection; the menace to the eye through the occasional anomalous healing process of the corneal wound; the peculiarly helpless condition of the patient with double extraction, and the depression of spirits in the event of serious inflammation retarding recovery; the great advantage and value of the experience gained by the single operation; accidents of frequent occurrence from various causes, followed by a possible sympathetic inflammation, necessitating enucleation of the eye operated on; the disturbed mental condition, such as hallucinations, acute mania, etc. There were sound reasons why the second cataract should not be extracted at all, if the first operation is successful. If the second eye is operated on, fully six or eight weeks should elapse, allowing every vestige of inflammation to subside.

Discussion. Dr. J. M. Ray (Louisville) agreed with the essayist in the main, but thought that six or eight days after a perfectly smooth operation the second eye could be operated on. Dr. J. L. Thompson (Indianapolis) had had great success in operating on both eyes early in his career, but would not do it now under any circumstances, and would not operate on the second eye until three months after the first operation. Dr. Howard F. Hansell (Philadelphia) did not see that there was any more danger in a double cataract extraction than in two single operations. Dr. Taylor (Wilkesbarre) was glad the doctor had made his paper so positive, as he believes the double operation never justifiable. Dr. Callan (New York) thought Dr. Calhoun a little too radical. He had not hesitated to perform the double operation, and so far had escaped disaster. Dr. C. F. Clarke (Columbus) thought we should never be influenced by the patient's desire to run the risk; the question should be decided on medical and surgical grounds, and the responsibility should never be shifted to the patient. Dr. E. E. Holt (Maine) used to operate on both eyes, but now absolutely refused to do so. Dr. A. W. Calhoun (Atlanta), in closing, said his early experience had been like that of Dr. Thompson, but he had gotten panicky about it after seeing a case in the hands of a friend go wrong. He insisted that it was better to wait six or eight weeks after the first extraction before doing the second.

"Reclamation of the Lens, Under Certain Conditions, a Justifiable Operation."

DR. F. T. ROGERS, Providence, R. I.

The author defined the operation and described the various forms of couching; gave a brief history of the operation and methods employed by surgeons and quack operators. There followed statistics of couching when the operation was done frequently, and a comparison with results in traumatic dislocation. He reported cases where useful vision had been retained for years. A résumé of the opinions of seventy-three ophthalmologists who replied to letter of inquiry. These were classified: 1. Those who at times believed the operation justifiable. 2. Those who do not. 3. Experience of those who have done the operation. Deduction. Report of a case. Reasons for believing that extraction by corneal section would prove disastrous. Results of bacteriologic examination extending over a year. History of the operation and condition during the first month, and the vision at six months.

The author's reasons for doing the operation in his case: 1. The first eye was lost by suppuration after an iridectomy, an unusual occurrence. 2. The existence of a chronic intractable conjunctivitis.

3. The existence of diabetes. 4. Disinclination to do an extraction with the probability of speedy and complete blindness. He concludes that the operation can be safely done, and that it offers a means of restoring sight where extraction is dangerous, and that the dangers attributed to it by so many surgeons do not necessarily follow. He believed that the operation should not be relegated to complete oblivion, but that in a certain class of cases it is justifiable and advisable.

Discussion.—Dr. L. Webster Fox (Philadelphia), opening the discussion, said he could not find it consistent with his teaching and practice to accept the views of the author. There might, however, arise certain conditions where the operation would be justifiable, but personally he rejected it under all circumstances, believing that the dangers of iritis, iridocyclitis and glaucoma more than counterbalanced its better features. Dr. H. V. Würdemann (Milwaukee) was convinced that the operation was still a live one, though it was to be done very rarely, and he would reject two of the indications given by the author—chronic conjunctivitis and chronic suppuration of the lachrymal sac. He felt more afraid of puncture of the globe with a needle than of a corneal section. Dr. J. L. Thompson (Indianapolis) referred to cases of fluid vitreous where no other operation would do; he also thought a preliminary iridectomy should always be done. Dr. Parke (Harrisburg) reported a case in which reclination was done accidentally, followed by a good recovery. Dr. S. D. Risley (Philadelphia) believed that the reclined lens acted as a foreign body and produced a steady degenerative process, characterized by atrophic choroiditis and destruction of the eye. Dr. F. T. Rogers (Providence), closing, said he had only referred to the operation in very rare cases, and fully appreciated the dangers that might follow.

“The Importance of General Therapeutics in the Management of Ocular Affections.”

A. MAITLAND RAMSEY.

Glasgow, Scotland (by special invitation).

A comprehensive appreciation of this most interesting address may only be obtained by reading the paper in full.

“Septic Thrombosis of the Cavernous Sinus, with a Report of Three Cases.”

DR. E. C. ELLETT, Memphis, Tenn.

The condition, the writer said, comes under the notice of ophthalmologists by virtue of the eye symptoms. He reported three fatal cases, with a review of the subject and references to the literature. He considered the importance of diagnosis because of the

grave prognosis. He considered that operative treatment offered the only hope of saving life. The prognosis was uniformly bad, but, since the prognosis otherwise is absolutely bad, it seemed proper that operation should be tried. Other than this, the treatment was simply supporting and symptomatic.

Discussion.—Dr. S. D. Risley (Philadelphia) had been surprised that the condition was not of more frequent occurrence, and thought it probably did occur without being recognized. He referred to several cases following abscesses about the face, and said that whenever there was found an infectious process in the area drained by the cavernous sinus we should be on guard for thrombosis. Dr. Prefontaine (Springfield) reported a case of double cavernous sinus thrombosis. Dr. Miles (Bridgeport) added another case, and Dr. Ellett, in closing, said his only object in presenting the paper was to call the attention of ophthalmologists to the condition, the diagnosis being easy if one were on guard.

“The Conservative Treatment of Affections of the Lachrymal Apparatus.”

DR. S. D. RISLEY, Philadelphia.

The paper consisted of a study of the anatomy of the lachrymal drainage apparatus, which, the author said, suggested much caution in the surgical procedures adopted to relieve the retention of tears caused by obstruction of some portion of the system. All surgical interference that impairs the physiologic function of this drainage system should, as far as possible, be avoided. The nasal duct, the writer insisted, was not an open drain pipe. In the experience of the author, forcible dilatation, cutting operations involving the lining tissues of the bony nasal duct, or extirpation of the lachrymal sac had rarely proved necessary when the cases had been seen at first hand. He thought that, when it is considered that the mucous membrane forming the nasal duct lies in a bony canal subject to great anatomic variations, it was obvious that we should at least hesitate before plunging forcibly through this duct instruments that could only hopelessly injure this admirably-contrived apparatus; that such means should be adopted only when other means failed.

Discussion.—Dr. G. E. de Schweinitz (Philadelphia) agreed with Dr. Risley and deprecated the use of large probes in these cases. When there is a dacryocystitis and constant secretion, he thought nothing would do but extirpation of the sac. He thought a man should no more be condemned to a life of probes than should a man with enlarged prostate be condemned to a life of catheters. Dr. E. J. Bernstein (Baltimore) had experimented with a number of skulls, and found three through which it was impossible to pass the

probes. In chronic cases he removed the sac. Dr. Martland Ramsay (Glasgow, Scotland) agreed with all said by Dr. Risley, but thought cases sometimes occurred where probing was necessary. Dr. Samuel Theobald (Baltimore) defended the use of the probes, and said that from his point of view their efficacy was about as well settled as that of vaccination in smallpox. He did not believe that the drainage apparatus was such an exceedingly delicate one, nor that it was necessary to preserve the exact adaptation of the parts. In a large experience with probes, extending over a period of twenty years, the results had been very gratifying. Dr. E. E. Holt (Maine) agreed with Dr. Risley; where he found it advisable to pass the large Theobald probe, he put in a lead style to fit the case. Dr. W. H. Wilder (Chicago) thought the cases not suitable for conservative treatment were to be benefited only by the radical treatment; he used an injection of paraffin in operating on the sac. Dr. S. D. Risley, in closing, thought the cases where the probe did good were where the skull is very large; he thought it bad surgery to repeatedly pass large probes through a duct so small that the friable bony structures must be crushed. He had practically abandoned their use.

"The Mathematical Point of Reversal in Skiascopy."

DR. SWAN M. BURNETT, Washington, D. C.

The writer said that in all published studies of the fundamental laws of skiascopy there is apparent a great lack of exactness in placing the point of reversal. Most writers were very vague and indefinite, while some regarded the pupil of the observing eye as its location. The paper was intended to show that, mathematically, it must lie at the nodal point of the observing eye.

Discussion.—Dr. Edward Jackson (Denver) thought the lack of exactness referred to by the author was rather due to an imperfection in language. He thought a paper of this kind could better be appreciated when read than when listened to, though it was of great practical importance to follow these mathematical problems through a clear demonstration. Dr. Mark Stevenson (Akron) thought the nodal point can correspond with the pupil, which he endeavored to demonstrate by diagrams on the board. Dr. Burnett, closing, said there can be but one mathematical point of reversal, and that is the nodal point of the eye.

"Some Injuries of the Eye in Their Medicolegal Aspect."

DR. JOHN J. KYLE Indianapolis.

After reporting two cases of injuries of the eyeball, one direct and

the other indirect, and one being due to a large particle of iron penetrating the posterior chamber, a magnet being used for its extraction, the writer considered the medicolegal aspects of such injuries and concluded that, unfortunately, in damage suits of this kind, the real physical condition of the patients is often obscured by both the attorneys for the plaintiff and the defense; only such evidence as may appeal to the jury being brought out; that to give a history of the case, with complete and accurate conclusions, does too often subject the physician to ridicule, thus detracting from the value of the testimony.

Discussion.—Dr. H. M. Starkey (Chicago) considered, as did the author of the paper, that these cases constitute the most perplexing with which the oculist has to deal, both in damage cases and in pension cases. He cited several cases illustrative of the point. Dr. J. L. Thompson (Indianapolis) spoke of a damage case where the alleged victim was a malingerer. Dr. H. V. Würdemann (Milwaukee) said that testimony, to be of use to the jury, should not be confined to the ocular lesion, but to the effect of that lesion on sight and earning capacity. The medicolegal relation of these cases, he thought, dealt not alone with the patient and party causing the damage, but also the consultant. Dr. Edward Jackson (Denver) called attention to the value of a method suggested by Priestly Smith of detecting malingering by a prism test, and said that voluntary simulation could always be detected in that way. Dr. John J. Kyle, closing, said the jury would rather see the injury than have the doctor tell them about it, and referred to a case of suit for the alleged production of deafness by a fall from a street car, in which the patient had a labyrinthine trouble, but, it being proven that there was a perforation in the drum, damages were secured.

“Blindness and Oculomotor Palsies from Injuries Apparently Not Involving the Optic or Oculomotor Nerves.”

DR. ALVIN A. HUBBELL, Buffalo, N. Y.

The paper consisted of reports of cases of injuries about the head and face, but not apparently implicating the optic or oculomotor nerves, in which blindness or paralysis of the ocular muscles followed. It discussed the subject of reflex blindness and reflex paralysis, and also the conclusions of Berlin and his followers, who believe that there exists a fracture of the sphenoid bone at the optic foramen or other direct injury in these cases. The author defended the reflex theory as the one that most reasonably, with our present knowledge, explained the loss of function of the nerves

of special sense and of motion in certain cases of remote injury. The writer submits ten cases, six of which are paralyses of the extra-ocular muscles without any evidence of the muscles themselves, or their nerve supply being injured either by pressure or hemorrhage. He considered that four of them could only be explained by the reflex theory.

Discussion.—Dr. S. D. Risley (Philadelphia) was not quite willing to accept the reflex theory of blindness; he could not, he said, grasp a satisfying comprehension of the reflex of origin of disease, particularly so serious as to cause blindness, though certain clinical facts would seem sometimes to bear out that theory. He cited several instances of this kind. Dr. G. E. de Schweinitz (Philadelphia) regretted that the author should have given the weight of his authority to a theory so without foundation. He considered the cases due to hemorrhage in the sheath, or to infection, or to vasomotor changes affecting the ganglion cells of the retina. He did not believe the doctor would find many to support him in his contention that these conditions are due to reflex origin. Dr. Hubbell, closing, said he was aware that he was opposing modern sentiment, but felt that he was in good company, and until a better and more satisfying theory was advanced he would be obliged to accept the theory of reflex blindness.

“The Ocular Symptoms of Lesions of the Optic Chiasm.”

DRS. G. E. DE SCHWEINITZ AND JOHN T. CARPENTER, Philadelphia.

Drs. de Schweinitz and Carpenter, after briefly reviewing the literature relating to the structure of the optic chiasm, pictured the anomalies of the visual-field phenomena in chiasm disease, as follows: Complete typical, bitemporal hemianopsia, with the line of separation lying exactly in the vertical meridian, and when it does not occupy this position: paracentral scotomas widening into bitemporal hemianopsia; bitemporal hemianopsia resulting in paracentral hemianopic scotomas; temporal hemianopsia of one eye, with complete blindness of the other; bitemporal achromatopsia with central scotoma for colors; chiasmal central amblyopia; irregular losses in the visual field; binasal hemianopsia and bilateral blindness of chiasmal origin. Following the scheme of Hensehen and the plan of Wilbrand, the probable lesions in these conditions were pointed out and illustrated. The ophthalmoscopic changes, anomalies of the ocular muscles and alterations in the pupil reflexes which may occur in chiasm disease, were described, and the various lesions which may involve the chiasm were classified and

recorded, with some special reference to the chiasmal lesions in acromegaly. Under the heading of simulation of the visual-field phenomena of chiasm disease by other affections, especial attention was given to so-called hysterical hemianopsia, and it was maintained that this did not exist as a permanent ocular stigma of hysteria, but could be present as a temporary phenomenon and become part of the cycle which begins with complete amaurosis and ends in complete recovery. Under these conditions the visual field defect might be homonymous lateral, bitemporal or binasal. Bitemporal visual-field defects in locomotor ataxia were described, and also those which are seen in brain tumors unconnected with chiasm disease. The symptoms of chiasm disease produced by toxic agents, for example, tobacco, alcohol, lead, carbonic acid and illuminating gas, were described.

On their account the authors referred to and described the following cases:

1. Bitemporal hemianopsia and optic nerve atrophy; autopsy findings; gumma of base of brain involving tracts and chiasm.

2. Bitemporal hemianopsia; left ptosis and superior rectus palsy. Autopsy findings: Tumor (carcinoma) in sella turcica involving and pressing upon chiasm, and involvement of left orbit with similar growth.

3. Temporal hemianopsia of right eye and complete blindness, with optic nerve atrophy in left eye. Clinical diagnosis: Spreading lesion of chiasm, perhaps an aneurism, or perhaps, as the patient exhibited the infantile type of myxedema, a myxomatous enlargement of the pituitary body. Skiagraphic examination indicated an abnormal shadow in the neighborhood of the chiasm.

Discussion.—Dr. Casey A. Wood (Chicago) thought it not possible to have anything more complete on this particular subject. He had suspected for a number of years that the cases of aversion to binocular vision were due to certain anomalies; to lack of proper crossing of the fibers as they run from the visual centers, and not to lack of development of the fusion centers. Dr. John T. Carpenter (Philadelphia) said the subject was one of great rarity, as in fourteen years' practice he had not personally met with a case of chiasm disease. Dr. Clarence A. Veasey (Philadelphia) exhibited a skiagraph of a case of chiasm disease, with a clinical history of the case. Dr. L. J. Borsch (Philadelphia) related a case of atrophy of both optic nerves, with recovery on potassium iodid, and thought the prognosis should be guarded in all these cases. Dr. Ashman (Wheeling) referred to the possibility of confounding these cases with toxic amblyopia, and reported a case in point.

Dr. Tiffany (Kansas City) reported a case of temporal hemianopsia, in which he considered that the trouble was located in the chiasm involving the crossed fibers only. Dr. C. R. Holmes (Cincinnati) referred to a case in which postmortem showed the exact condition; a clot was found in the region of the sella turcica. Dr. John E. Weeks (New York) referred to the fact that choked disc is not frequently found in these cases, and called attention to the theory recently advanced that the disease of the chiasm closed the subarachnoid space so that the entrance of the subarachnoid fluid was prevented. Dr. de Schweinitz, in closing, said that they had been struck, as was Dr. Weeks, with the rarity of choked disc, and thought it due in some cases to the character of the lesion.

"Constriction of the Visual Field a Symptom of Anesthesia of the Retina in Children."

DR. L. WEBSTER FOX, Philadelphia.

The author said the term retinal anesthesia was usually employed to designate a rather vague condition in which the function of the retina is temporarily suspended, or its sensibility gradually diminished. He presents the features of the condition as he has met with it, and substantiates his statements with histories of his cases. In his experience, retinal anesthesia is characterized by a reduction in the acuity of vision and marked contraction of the visual field. The treatment consists of the daily application of a weak, constant electric current, with sittings of about ten minutes' duration. Recovery very prompt under this treatment.

Discussion.—Dr. Walter Pyle (Philadelphia) thought the author deserved great credit for working this matter up, and reported several cases satisfactorily treated by the writer's method. He considered overwork the main factor in the production of the trouble. Dr. E. E. Holt (Maine) had observed several cases, and his experience coincided with that of the author. He also considered the disease due to overwork. Dr. G. E. de Schweinitz (Philadelphia) did not see that these cases differed from the well-known cases of neurasthenic asthenopia described by Willbrandt. The difference between these and hysterical cases was that they have no reversion of the color line, but he was not clear where they differed from the cases of neurasthenic asthenopia. In closing, Dr. Fox said the term had not been a satisfactory one, but that he had not yet been able to find a better one. He wished to dwell particularly upon the treatment, and thought it marvelous what one application would do in some of the cases.

"Syphioma of the Ciliary Body."

DR. HERMAN KNAPP, New York.

Dr. Knapp gave the classical symptoms of the disease, and reported a case with very successful issue.

Discussion.—Dr. Swan Burnett (Washington) said the trouble was an old friend with him because of his large negro clinic, and cited some cases. He called attention to the pathologic resemblance to tubercle. Dr. Kipp (Newark) had not seen a case in which it had not been necessary to enucleate in the end. He relied upon mercury in treatment. Dr. E. E. Holt (Maine) reported several cases of the kind. Dr. Ledbetter (Birmingham) spoke of the frequency of the trouble in his region, where there were so many negroes. Dr. Robert L. Randolph* (Baltimore) had observed a case six weeks ago. It had been mistaken at first by the physician for sarcoma of the iris. Recovery on potassium iodid and mercurial inunctions. He asked Dr. Knapp as to the differentiation between these conditions. Dr. Herman Knapp, in closing, described, with a drawing on the board, the difference in appearance of sarcoma of the iris and the condition under discussion.

"Temporal Cleft of the Nervehead and the Other Fundus Anomalies Often Present with It."

DR. CHARLES H. BEARD, Chicago.

The paper consisted of a report on a series of observations concerning a hitherto undescribed appearance of the optic nerve entrance, particularly as regards the arrangement of the nerve fibers and that of the blood vessels of the retina. Attention is called to certain physio-pathologic features of the choroid that accompany the condition in question, that are partly congenital and partly acquired. The attendant functional abnormalities are detailed, among which is a striking peculiarity relative to the physiologic blind spot. The paper was illustrated by colored drawings and charts.

The most distinctive feature of the appearance in question, the writer said, was an apparent wide parting in the optic nerve fibers on the temporal side, or a sort of cleft outward of the cortical portion of the nervehead. He said anomalies of the retina, of the choroid and of the refraction are constantly associated with this condition.

Discussion.—Dr. G. E. de Schweinitz (Philadelphia) begged to call the condition the Beard nervehead, and expressed admiration for the doctor's observations. He asked if the cleft nervehead

described by the author was associated with anomalies of mentality. Dr. Brown (Minneapolis) had been following up the line of inquiry suggested by Schirm of Leipzig, as to the physiologic excavation, and had concluded that perhaps this so-called physiologic excavation is not really physiologic. In closing, Dr. Beard stated that he had not found defective mentality in these cases, and said that as to the physiologic excavation he had found in the powder-ground fundus, with thin choroid, that there was apt to be wide physiologic excavations and diminished light sense, and that they were truly pathologic cases.

“Obstruction in the Retinal Arteries.”

DR. ALLEN GREENWOOD, Boston.

The author gave as the most frequent causes arteriosclerosis, embolism, spasm, the most frequent being arterial disease. Arteriosclerosis of retinal arteries often not recognized early. Later stages produce “degenerative albuminuric retinitis.” Most cases follow general arteriosclerosis, and are to be distinguished from inflammatory retinitis, due to uremic poisoning. Important that this be recognized early, for treatment may add to comfort and length of life. Complications to be delayed are sclerosis of vessels of the brain and kidneys. Ophthalmic examination of elderly patients often reveals early arterial changes years before involvement of the kidneys. Embolus usually dislodged fragment of diseased heart valve. Treatment must be early to cause it to pass into a smaller and more peripherally situated vessel in time to restore retinal function. Many cases of so-called embolism probably result from sudden closure of retinal artery nearly obstructed by endarteritis, the closure being due to spasm or lowering of blood pressure. Spasm as a cause of attacks of sudden temporary blindness was now an accepted fact. Usually occurred in retinal arteries, the seat of endarteritis, and these two conditions may cause permanent closure of central artery or a branch and lead to blindness. He urges ophthalmic surgeons and general practitioners to be alive to the necessity of advising proper treatment in the early stages of the disease, when more can be done than is generally supposed.

Discussion.—Dr. John E. Weeks (New York) called attention to conditions resembling arteriosclerosis, as perivasculitis. He said that in cases of arteriosclerosis the small vessels are most profoundly affected, the capillaries of the retina, and thought spasm might occur when elasticity of the vessel wall is retained. In closing, Dr. Greenwood said he had put in quite a number of

cases where the sclerosis was present several years before the condition manifested itself in the kidneys, but that the kidney lesion always came sooner or later.

“Development of the Faculty of Binocular Vision.”

DR. EDWARD JACKSON, Denver.

The writer considered that the fusion faculty, a highly specialized power of co-ordination, is probably developed slowly, but only during early childhood. He called attention to the fact that the possibilities of fusion may induce the child to practice it habitually, if favorable conditions are supplied. The weak point in the usual methods, he thought, was the limited range of objects on which the fusion faculty could be exercised, and the small proportion of time that the training can be kept up. The author exhibited and described an instrument, by means of which all acts of vision can be utilized to develop binocular fusion. The instrument should be used for the same purposes as the amblyoscope. It could also be used in looking at any object, near or distant, to produce any modification in direction required in the interest of binocular vision.

Discussion.—Dr. Wendell Reber (Philadelphia) cited a case in which binocular vision was established with great rapidity after operation. Dr. Jackson said, in closing, that the best illustration we have that binocular vision is developed sufficiently to go right on after some obstacle is removed, is the vision that children often get after the correction of a high error of refraction. There is something there ready to be used as soon as the child acquires the knack.

“The Usefulness of the Ophthalmometer.”

DR. F. C. HEATH, Indianapolis.

The writer argues that the ophthalmometer is not merely an expensive toy, but a very useful instrument; that it shows the corneal astigmatism, which in most cases is .50D more than the total astigmatism, if with the rule, or the same amount less if against the rule; that it does not do away with the necessity for using mydriatics, although it does add largely to the number that can be fitted with comparative safety without them; that it is not infallible as regards axis, but the cases where it misses are exceptional; that it is one of the quickest and surest methods of determining astigmatism, either as to axis or amount; that in connection with ophthalmoscopy and the test lenses (in many cases with-

out a mydriatic), it is as good a routine method of measuring refraction as we possess.

Discussion. Dr. Wendell Reber (Philadelphia) was not so enthusiastic as the author of the paper, though he had used the instrument a good deal. He thought that while it was an important office adjunct, it was certainly not the faithful servant that retinoscopy is. Dr. J. M. Ray (Louisville) considered it the best method of adapting lenses for the correction of astigmatism, and that it was certainly accurate as to axis. Dr. C. F. Clarke (Columbus) had been a persistent user of the ophthalmometer, but felt very much as did Dr. Reber about it. Dr. Edward Jackson (Denver) said the scale of the instrument is made out for the ideal eye, and therefore does not fit the aphakic eye, so that it does not give true values in post-cataract cases. He used the ophthalmometer, but not to depend upon. He considered it like the averages in presbyopia, not to be relied upon without other tests. In closing, Dr. Heath said he agreed with Dr. Jackson that the instrument was not to be relied upon alone, but he found in 75 per cent. of cases that the ophthalmometer was correct.

“Some Problems of Presbyopia.”

DR. GEORGE M. GOULD, Philadelphia.

The author presented the following fifteen statements, with explanatory additions, from experience: 1. In oncoming presbyopia cycloplegia generally necessary to obtain the static refraction on which the presbyopia is based. 2. Age at which correction should be first given depends on the pre-existing refractive error. 3. Correction of error often dependent on amblyopia from disease. 4. Less accommodation may condition the amount of presbyopic error. 5. Onset of presbyopia may be delayed by hypertrophied accommodation. 6. Age of correction of presbyopia and degree of error depend on amount of near work. 7. Presbyopes who misstate age may suffer if oculist does not detect error. 8. Occupation may necessitate higher and earlier correction than usual. 9. Quality and power of light must be considered. 10. Position of body and head in near work may be harmful. 11. Effect of general health, vitality, vigor of will and of body. 12. Failure to cure reflexes of eyestrain may be due to want of bifocals. 13. Eye glasses being more prone to maladjustment than spectacles may cause failure to relieve symptoms or sequels of eyestrain. 14. Premature presbyopia possibly years before usual age; may explain failure to relieve symptoms when none of the preceding causes will do so. 15. Systemic disease and not presbyopia or eyestrain

may cause symptoms. The writer reported a number of cases illustrating his argument. He uses cycloplegics up to the age of 60.

Discussion.—Dr. Robert L. Randolph (Baltimore) thanked Dr. Gould for having asked him to open the discussion, and commended him on his communication, to which he did not feel that he could add anything new. He had been surprised to find how often it was necessary to use homatropin in order to discover the astigmatism so frequently responsible for the discomfort in these cases. The presbyopic condition, no matter how advanced, never deterred him from the use of homatropin where there was any doubt as to the true condition of refraction. He called attention to the great convenience of the discs of cocain-homatropin suggested by Wood (Chicago), which had the advantage of quickness in obtaining the result desired, thus lessening the chance of high tension. He instilled eserine before allowing the patients to leave the office. Dr. G. C. Savage (Nashville) said that the center for the ciliary muscle being intimately associated with the center for convergence, every excitation of that center meant overexcitation of the center controlling the internus. A weak ciliary muscle required a strong impulse from the brain, and *vice versa*. These centers should be put into a state of healthy action and relieved of the necessity of sending strong impulses. He contended that the corrected hypermetrope will not have early presbyopia. Dr. Herman Knapp (New York) spoke of his own case, and the fact that he wore bifocals with great comfort. Dr. Mark Stevenson (Akron) used homatropin in alboline, and has the patients wait in a dark room while the drops are being instilled. Dr. W. L. Pyle (Philadelphia) had long been impressed with the value of cycloplegics. He had previously reported a case of glaucoma from the use of homatropin, which, however, recovered perfectly. The use of a drop of eserine solution before allowing these patients to leave the office, he thought, precluded the danger. Dr. Valk (New York) thought the more he left scientific ideas and got down to natural methods in fitting these cases the better results he got. He disapproved of the use of atropin after the age of forty. Dr. Kuykendall agreed with Dr. Gould, considered presbyopia in myopes a diseased condition, and thought these cases should have a full correction for near and distant work until confident that presbyopia is established. Dr. J. L. Thompson (Indianapolis) did not fear mydriatics at all, but did not use atropin. He used homatropin, correcting with eserine. Dr. Gould (Philadelphia), in closing, said he used homatropin and cocain, two-thirds of the former and one-third of the latter, and did not hesitate to use it up to the age

of 60, and immediately brought the accommodation back with eserine. He did not agree with Dr. Valk (New York) as to correcting these cases without a cycloplegic.

“Sympathetic Ophthalmia.”

DR. SAMUEL THEOBALD, Baltimore.

The writer said that thirty years ago there was but one view held as to the genesis of sympathetic ophthalmitis—that it was the result of a reflex irritation transmitted from the primary to the secondary eye through the ciliary nerves. Notwithstanding the convincing evidence in favor of this view, it soon came to have but few adherents, because it conflicted with the teaching of modern pathology that inflammation can not be produced by an irritation transmitted through a sensory nerve. The theories that have since been advanced—the progressive optic neuritis theory advocated by Alt and the septic theories of Leber, Snellen and Berlin—rested on no substantial basis. The carefully conducted experiments of Head and Campbell regarding the pathology of herpes zoster, which show that bacteria take no part in either the ganglion or secondary skin lesions, and that the latter are the result of “intense irritation of cells in the ganglion which normally subserve the function of pain,” seem to dispose of the only serious objection, which has ever been urged to the ciliary nerve or reflex theory of sympathetic ophthalmitis, and bring this theory, which so satisfactorily explains the clinical phenomena of the disease, once more to the forefront.

“Clinical and Histological Observations on Sympathetic Ophthalmia.”

DR. CLARENCE A. VEASEY, Philadelphia.

The paper made brief reference to some points in therapeutics in previously published papers, and gave the clinical history of two cases, one appearing eight years after the primary injury by a piece of glass, the latter remaining inside the eye during this period, the other appearing four weeks after the primary injury. Treatment by large doses of salicylate of sodium after other remedies had failed to check the progress of the disease, followed by recovery with useful vision. It further gave a histologic study of the enucleated eyes. The writer thought that while these cases did not throw much light on the subject of the cause of the trouble, it would seem that the disease was an infectious process arising in the primarily affected eye, and by some means of exit leaving that eye to obtain a good breeding place in the other.

"Operative Procedures on the Exciting Eye and the Sympathizing Eye in Cases of Sympathetic Ophthalmia."

DR. JOHN E. WEEKS, New York.

Operative procedures undertaken by the author under the following conditions were discussed: 1. Cases in which the exciting eye still preserved vision, the sympathizing eye being in the early stages of sympathetic ophthalmia. 2. Cases in which the sympathizing eye has become quiet, with almost complete posterior synechia, pupil occluded, vision, perception of light projection good, tension normal or slightly below, the exciting eye not a factor. 3. Cases in which cataract has formed in the sympathizing eye; posterior synechia; eye quiet; projection good; the exciting eye not a factor. 4. Cases in which, with occluded pupil, total posterior synechia exists in the sympathizing eye. The tension is plus and increasing. Projection still good. The inflammatory process in a subacute stage and the exciting eye not a factor. Cases in point and the views of the writer are given.

Discussion.—Dr. C. F. Clark (Columbus) thought the pathology of sympathetic ophthalmia is certainly not well established, but that certain elements in its pathology are clearly determined. He said while optic neuritis is frequently a feature, the condition is generally a diffuse inflammation of the uveal tract, and it is this that is to be treated. He advocated the use of the salicylates in large doses, keeping the patients in bed, and uses in conjunction therewith hot packs and other diaphoretics. He considered it more important to know how to relieve these conditions than to know every point in the pathology which was so obscure. Dr. Leartus Connor (Detroit) thought that those who advocated one route or the other had some good reason for their belief, and that probably all of them are involved. He thought the further study of the nature and action of toxins may throw some light upon the matter; it was of importance, he thought, to continue to try to get at the pathology and not be satisfied with knowing how to treat the condition. Dr. C. H. Williams (Boston) spoke of the use of radium bromid in the treatment of a case of this kind with excellent results, and showed that the eye could be exposed to radiations of pure radium bromid without in any way doing harm. Dr. F. M. Wilson (Bridgeport) referred to the importance of these conditions, and was inclined to differ with Dr. Weeks in regard to operation, and thought that after trying the usual methods, heat and instillations of atropin and cocain with adrenalin and perhaps subconjunctival injections of salt solution, if the condition still persisted he would remove the eye. Dr. G. C. Savage

(Nashville) did not believe in the ciliary irritation theory: had had two cases occur after the exciting eye had been enucleated. Dr. Edward Jackson (Denver) referred to the experiment of Brown Pusey of producing degeneration in one kidney by ligation of the vessels and ureter, followed by degeneration in the cells of the other kidney. Some substance seemed to be formed in the cells of the degenerating kidney capable of producing degeneration in other cells situated elsewhere in the body. He thought this very suggestive in connection with sympathetic ophthalmia. Dr. Sutphen praised the use of the salicylates in these cases. In support of Dr. Theobald's theory, he cited a case where relief was brought about by separating adhesions which had formed between the stump and inside of lids after enucleation. Dr. J. L. Thompson (Indianapolis) believed there was more than one route, just as he believed that mosquitoes do not cause all the cases of malaria. Dr. S. C. Ayers (Cincinnati) reported several cases as bearing upon Dr. Weeks' paper. Dr. Robert L. Randolph (Baltimore) had concluded that the lower animals were not liable to sympathetic ophthalmia, and that so far as experiments on them were concerned, we could never throw any light upon this obscure subject. Dr. Theobald, in closing, said that the cyto-toxin theory had not gone far enough yet to warrant the establishment of a theory of the kind suggested by Dr. Jackson.

"Methyl Alcohol Intoxication."

DR. FRANK BULLER, Montreal. (By special invitation.)

The writer considered the increasing frequency of disastrous results following the ignorant or indiscreet use of the substance and the difficulty of educating the public as to the poisonous properties. He gave a résumé of all the cases he could collect. The toxicity of methyl alcohol, he said, was undoubtedly greater in some individuals than in others, but no amount of habitual indulgence in alcohol secured the individual against the fatal effect of large, or moderately large, and repeated doses of methyl alcohol. The results as to visual disturbance were: 16 total blindness; 3 total blindness of one eye; 15 partial recoveries; 7 recoveries; 10 terminated fatally.

"Supplementary Report of Hitherto Unpublished Cases of Methyl Alcohol Intoxication." DR. CASEY A. WOOD, Chicago.

This, as the title suggests, was a lengthy report of all the unpublished cases of this affection.

(No discussion.)

"New Views Regarding the Horopter."

DR. GEORGE T. STEVENS, New York.

The writer said that Helmholtz and other searchers in this field of inquiry have adopted views which have resulted in the confusion in which the subject has been involved. He considered the question of what is the true doctrine of corresponding points and vertical meridians, and gave a number of mathematical demonstrations.

The paper was discussed by Dr. G. C. Savage (Nashville) in the dark, by means of diagrams projected on the screen.

"Brief Report of Two Additional Cases of Sympathectomy for Glaucoma."

DR. W. B. MARPLE, New York.

The cases were: 1. Case of chronic simple glaucoma previously iridectomized in both eyes. Progressive failure of vision notwithstanding. Sympathectomy, some improvement. 2. Case of acute inflammatory glaucoma. Trial made of sympathectomy, as patient had previously lost the other eye. Did not prevent recurrence of acute attack subsequently. He concludes as follows:

1. That the operation is not indicated in acute inflammatory glaucoma. 2. If the operation is ever indicated, it is in cases of chronic simple glaucoma. The writer could not see a very brilliant future for the operation. The best that could be said of it was that it could do no harm, and possibly might do some good.

Discussion.—Dr. W. H. Wilder (Chicago) referred to cases of the kind reported at a previous meeting, three of which were very favorable. He did not agree with the writer's conclusions, but was inclined in many cases to favor the operation. He thought if the operation was to be given a fair trial it should be in such cases as iridectomy is done in. Dr. John E. Weeks (New York) said his position was much like that of Dr. Marple. In some of his cases there had been acute exacerbation of the glaucoma, and iridectomy had to be performed. He could not agree with Dr. Wilder that it should be performed before iridectomy had been tried.

"The Environment and Visual Requirements of Railway Engineers and Firemen. Personal Observations from an Engine Cab."

DR. NELSON M. BLACK, Milwaukee, Wis.

The author said that most writers had omitted to consider the environment and conditions under which these men work. His observations were made from an engine cab, in all kinds of weather, at all times of the day and night, over 3,000 miles of road being covered. Visible signals of all kinds were described and illustrated

by means of the projector. He considered the conditions interfering with their being seen (with the standard of vision required), such as those existing about an engine, those due to atmospheric changes, and those caused by various reflecting surfaces. The writer was governed by the reports as to visual requirement of trainmen adopted by the American Medical Association and the American Academy of Railway Surgeons. Suggestions were made toward mitigating some of the difficulties encountered in signal reading, with a view of their being adopted as amendments to the American Medical Association report.

Discussion.—Dr. C. H. Williams (Boston) said that Dr. Black had come to very much the same conclusions as had been arrived at before, except that he differed in some of the smaller points a little. He spoke of the inadequacy and hopelessness of legislation. Speaking of the lantern test, the speaker said he advised it as a supplementary test only. Dr. J. H. Claiborne (New York) called attention to a previous suggestion of his of using white lights with various geometrical figures, and eliminating the red and green lights, in the precautions taken to prevent disaster at sea. He thought that on the cab there should be three men—one to drive, one to stoke, and one to watch. Dr. Lambert emphasized the point of having the men examined by a competent ophthalmologist. Dr. Kuykendal thought that many of these men who were ignorant of the names of colors could be schooled in the matter so that they could pass the tests. Dr. H. V. Würdemann (Milwaukee) was glad that Dr. Black and Dr. Williams had reconciled the differences that had existed as to the examination of color vision. He thought the lantern should be a supplementary test. The final test should be to examine the men on the train. Dr. F. C. Todd (Minneapolis) called attention to the possible complication of diplopia, and cited a case in point. Dr. C. F. Clark (Columbus) referred to the importance of testing the light sense, which would often be found to be defective. In closing, Dr. Black thought it would be well to change the lantern test so that the men should be asked to tell not the colors, but whether the light meant caution, danger or safety, as many men are ignorant of the names of colors. He thought a high standard of vision for entrance the proper thing. As to the use of white lights, as suggested by Dr. Claiborne (New York), he had been told by the men that they were out of the question, as they were so easily confused with the lights illuminating the cities and towns.

"(a) Some New Test Types for the Reading Distance. (b) An Improved Form of Apparatus for Testing the Position of the Axes of the Eyes." DR. CHARLES H. WILLIAMS, Boston.

The new test types for the reading distance have one degree of visual angle between each size of type, numbered so the reading power can be noted, according to formula: L equal d/D . L is reading power, d greatest distance in decimeters at which print is read, D is distance in decimeters at which the short lower-case letters subtend visual angle of five minutes (shown by numbers printed at each paragraph.) Easy to make a quick record.

The apparatus for testing the position of the axes of the eyes consists of vertical and horizontal arms holding electric lights controlled by a switch, three combinations: 1. Vertical red lines with horizontal green figures. 2. Horizontal red lines with vertical green figures. 3. Red lines and green figures in the same vertical line. Patient looks through spectacles with one red glass and one green. Looking at the apparatus in first or second positions, if he sees the red line at zero point of the figures it shows there is no deviation right or left or up or down; if the red line comes over one of the figures the number shows the direction and amount of the deviation and the number of prism needed to correct the deviation. In third position errors of rotation are shown.

"The Association of Optic Neuritis and Facial Paralysis."

Dr. EDWARD SHUMWAY, Philadelphia.

The paper considered the association of optic neuritis and facial paralysis, and gave the history of patient with right-sided facial paralysis, associated with double optic neuritis, followed by partial hemi-atrophy of the face and enophthalmos. The writer discussed the relation between optic neuritis and facial paralysis; sensory disturbances in facial paralysis and their consequences. The conclusions drawn were: 1. That optic neuritis is occasionally associated with facial paralysis, either alone or as part of multiple neuritis. The optic neuritis is usually of the retrobulbar type, but a decided papillitis may be present. 2. In facial paralysis flattening of the face and enophthalmos may appear, and are to be considered as due to neuritis of the fifth nerve.

Discussion.—Dr. John E. Weeks (New York) thought the enophthalmos and approach to facial hemi-atrophy a very interesting feature. He had recently observed such a case where there was no affection of the optic nerve, only of the facial.

"Blastomycosis of the Eyelid." DR. W. H. WILDER, Chicago, Ill.

The writer reported a case of this disease, and considered its nature and cause. The cause was to be found in a peculiar fungus that infects the skin. Conjunctiva not usually affected, although it may be. Danger to the eye from ectropion was to be considered. The histologic changes were described and the treatment mapped out. Potassium iodid and the x-ray were the important methods of treatment. The clinical appearance and pathology was illustrated by lantern slides.

Discussion.—Dr. W. A. Pusey (Dermatologist, Chicago) confirmed the diagnosis, and thought it was well that the condition had been called to the attention of the oculist because of its predilection for the eyelids. He considered the pathogenesis of the condition, and its differential diagnosis from certain other affections somewhat resembling it. It had been found most frequently in the middle west, though why this should be has not yet been determined. Dr. E. C. Ellett (Memphis) reported a similar case occurring in his practice. In closing, Dr. Wilder said the prognosis was not particularly bad unless there was systemic infection. He recommended the radiations of the x-ray and large doses of potassium iodid.

"The Axis of Astigmatism." DR. J. H. CLAIBORNE, New York.

For sake of convenience the author uses the expression "axis of astigmatism" synonymously with the axis of the cylinder. He prefers the index of the commonly used spectacle frame, with the circle divided in half and zero marking the horizontal axis to the left in each eye. He believed in the absence of catastrophism in the axis of astigmatism; that hyperopic astigmatism is an arrest of development and myopic astigmatism an overdevelopment; that the axis does not occur haphazard, but along well-defined lines of regularity, the exceptions proving the rule; that there is a realm of hyperopic astigmatism and a realm of myopic astigmatism in which the axes recur; when they lie outside of these realms it is exceptional. He demonstrated the realm in each condition, and considered the relationship of the axes occurring in each eye to the axes in the fellow eye. The various possible combinations were reviewed, and cases illustrating the author's ideas cited.

"The Relation of Corneal Curvatures to the Refraction of the Eye."

DR. MELVILLE BLACK, Denver.

The paper consisted of a study of the radii of corneal curvatures of 2,092 meridians. Measurements made in millimeters with the ophthalmometer of Chambers Inskip. Two tables were presented,

showing 1,273 meridians to be hypermetropic in refraction, 509 myopic and 312 ametropic. The tables showed a very striking relation between the refraction of the eye and the corneal curvatures. As the radius of corneal curvature increases, the refraction becomes more hyperopic, and as the corneal radius diminishes the refraction becomes more myopic. The eyes examined were all under the influence of a cycloplegic.

Discussion.—Dr. Griffin (Ann Arbor) considered the condition of astigmatism to be due to pressure of the lens upon the cornea, and that the axes of the two eyes were, as a rule, symmetrical. He found the axis determined under a mydriatic frequently different from that without. The axes determined by the ophthalmometer and subjectively often varied considerably. Dr. Bennett (Buffalo) agreed with Dr. Claiborne as to the realms of preference in astigmatism, and referred to a study of his in which he considered 7,665 eyes as to the variations in axes in the different decades. Dr. Harlan (Philadelphia) had studied a few years ago 500 cases taken from the hospital records, and found that in 70 per cent. the axes were exactly symmetrical. Dr. L. J. Borsch (Philadelphia) described a modification of the Placido disc. In closing, Dr. Claiborne said he thought the ophthalmometer not an accurate instrument at all, frequently missing the axis by 15 degrees.

“An Exact and Secure Tucking Operation for Advancing an Ocular Muscle, Illustrated by Demonstration on the Manikin.”

DR. F. C. TODD, Minneapolis.

The paper consisted of a brief résumé of various methods of shortening the tendon by folding. The writer considered the surgical principles involved, and the disadvantages of the advancement operations; lack of exactness and security of results—results could not be determined until operation had been completed—cutting of suture in tendon along its fibers, etc. The author demonstrated his own method, showing the use of the tendon tucker, the method and manner of placing sutures. He explained the advantages of the use of the instrument in tucking—ease, exactness, great degree of deviation possible. The use of two sets of sutures, which enabled the operator to secure precise adjustment after measuring parallelism and before tying, and prevented cutting or slipping of sutures.

Discussion.—Dr. G. C. Savage (Nashville) thought his operation, which he explained, produced less traumatism than Todd's. He thought the tucking operations were the only ones that should ever be done for advancement of ocular muscles, and that the mus-

cases should never be cut. He thought that Dr. Todd's operation would not apply in cyclophoria. Dr. Wendell Reber (Philadelphia) did not consider any advancementt operation easy; he had used the tucker, but was not enthusiastic about it; had felt that it was in the way and that the result was likely to be temporary. He thought the Worth operation to be preferred. Dr. L. Webster Fox (Philadelphia) had had Dr. Todd perform the operation in his clinic a few days previously with great success, although using an improperly made instrument. Dr. Wilkinson (Washington) favored the Worth operation, and was skeptical as to the result in the tucking operation. Dr. Mark Stevenson (Akron) described with diagram on the board a method he used. Dr. John E. Weeks (New York) thought the idea of doubling a muscle up was theoretically imperfect. He advanced more than he tenotomized and had had good results. He considered it important to maintain the width of the tendon. He did not believe a sufficient plastic process would be set up in four or five days, but that the sutures should be left in eight to ten days. Dr. Lambert was not an advocate of the tucking operation, and described a method of Dr. Reese, with which he uses a specially devised forceps. Dr. L. J. Borsch (Philadelphia) defended the De Wecker operation, which he said he was not yet ready to abandon. Dr. Todd, thought, in closing, that the great number of operations suggested showed that we were not satisfied. Contrary to Dr. Savage's idea, he thought one of the advantages of the instrument was its use in torsion.

"Subjective Refraction."

DR. JOHN A. TENNEY, Boston.

The writer said the state of refraction in an eye may be determined by means of the pin-hole disc found in the trial case, or by a hole in a card. If the opening is held close to the eye and moved sidewise, objects will seem to move, like the light and shadow in the pupil when one uses the concave retinoscopic mirror. If myopia is present, the motion will correspond to that of the disc; if there is hyperopia the motion will be contrary. In simple hyperopic astigmatism the motion will be opposite in the meridian of lesser curvature and no motion in the other. In simple myopic astigmatism, the motion is contrary to that in the hyperopic variety. When the ametropia is corrected, no motion will be seen anywhere. It is understood that the accommodation is at rest in these examinations.

Discussion.—Dr. G. C. Savage (Nashville) said the doctor had given us the simplest and most accurate subjective test for refraction that we have; that nothing could be more accurate.

"Double Radial Rupture of the Iris Causing a Complete and Well-Formed Iridectomy." DR. S. C. AYERS, Cincinnati, Ohio.

The injury was the result of the impact of a leaden bullet which was thrown by an air-gun and struck the edge of the left lower lid. The iridectomy was as perfect in outline as if it had been done by a surgeon. The lens was opaque. The only parallel case, the writer said, was one reported in 1821 by Bungler. Numerous cases of slight tears of the pupillary margin are on record, as well as a number of more severe lacerations extending to its ciliary attachment.

Discussion.—Dr. L. J. Borsch (Philadelphia) had seen a similar condition produced by injury caused by a woman throwing a loaf of bread at her husband. Dr. Harlan (Philadelphia) said ruptures of the sphincter are quite frequent if carefully looked for. He had seen two or three such cases.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Thursday, June 9, 1904.

John Tweedy, F.R.C.S., President, in the chair.

A CASE OF PRIMARY OPTIC ATROPHY DUE TO LEAD.

Mr. Simeon Snell (Sheffield) related this case, occurring in a boy, aged 16. The sight had commenced to fail for rather more than a year before the patient was first seen, in October, 1903, but had rapidly become worse during the last three months. The vision was R. 2/60 and L. 1/60; both optic papillæ were white and atrophic, but did not suggest a preceding neuritis. The family and personal history were good. For two or three years the boy had worked as a file cutter, which exposed him to the influence of lead; he had the ordinary symptoms of lead poisoning. The optic atrophy was, in Mr. Snell's opinion, due to this cause, and all other causes had been eliminated.

Mr. Snell mentioned a similar case he had seen, and stated that among file cutters he had observed several instances in which the optic nerves were affected, either directly by the lead, or in association with kidney or brain disease.

A CASE OF ATROPHY OF BOTH OPTIC DISCS RESULTING FROM UTERINE (POSTPARTUM) HEMORRHAGE

Mr. Snell related this case. The patient was a lady, aged 28, who was seen last February, a few days after recovery from puerperal mania. Both papillæ were atrophied, but there was no evidence of past neuritis. There was no P. L., and the pupils were dilated and

motionless. On Oct. 3, 1903, she was delivered of her first child, at full term, but an hour afterward she had considerable hemorrhage, and, although the amount lost was not very great, yet she had never seemed to have really recovered from it.

It was doubtful when the failure of sight had commenced, but it had been suspected for some time. She had probably not seen at all for two months. There was no albumin, nor throughout pregnancy anything to suggest kidney disease.

Mr. Snell referred to a previous case he had seen, in which the sight was greatly affected by the same cause, and he also alluded to other cases collected by Chevallereau.

A CASE OF BILATERAL GLIOMA CURED BY REMOVAL OF THE TWO EYES.

Mr. Snell related this case. The patient was, when first seen, on April 1, 1897, aged 22 months. Glioma of the retina was diagnosed, and the eye was excised on April 7. The tumor was confined to the globe, but was rather large. On Jan. 7, 1899, the child was again seen, with a similar condition in the other eye. This was excised on March 1, and at the present time the child is alive and well. Mr. Snell referred to the small number of cases in which both eyes had been removed for glioma without a fatal result.

GLIOMA OCCURRING IN TWO MEMBERS OF THE SAME FAMILY, IN ONE INSTANCE BEING FATAL, BOTH EYES BEING AFFECTED.

Mr. Snell gave particulars of these cases. A girl, aged 4½ months, was sent to him on Dec. 18, 1903, with glioma of the right eye; the eye was removed on December 22. The growth was confined to the globe, which it nearly filled. There was no recurrence. Another child of this family had suffered from glioma of both eyes which had proved fatal, the parents having refused to allow the removal of both eyes. There was one other child between these two who was alive and healthy.

Mr. Snell mentioned that, until recently, no instances had been published in which glioma had occurred in more than one member of the same family. Up to the present time three observers, beside himself, had recorded cases.

The President, Mr. Stanford Morton, and Mr. Devereux Marshall mentioned interesting cases they had had of glioma bearing on the points brought forward by Mr. Snell.

ON MICROPTHALMOS.

Mr. Stephen Mayou gave a lantern demonstration on the anatomy of three cases of microphthalmos which he had examined.

Card specimens were shown by Dr. Louis Werner, Messrs. E. E. Henderson, G. W. Roll, E. W. Brewerton and Dr. D. Rayner Batton.

Abstracts of Recent Ophthalmic Literature.

EDWARD ADAMS SHUMWAY, M.D.

PHILADELPHIA.

The First Ophthalmic Flying-Column in Egypt. Osbourne (*Wochenschr. f. Ther. und Hyg. des Auges*, Feb. 18, 1904) gives an interesting account of the first traveling eye dispensary sent out by the Egyptian government under the endowment fund of 40,000 pounds sterling given by the English banker, Sir Ernest Cassel. The plan determined on by Sir Pinching, director of sanitary affairs, follows the idea of the flying columns which were introduced into Russia by Bellarminow. The first one was established in the city of Menûf, in the province of Menûfieh, where the people were particularly poverty-stricken and wretched, and the nearest eye clinics in Cairo and Alexandria, four hours distant by train. The direction of the column was put in the hands of the English oculist, Dr. Macallum. The camp was situated on a level space near the city, and consisted of eight white tents of various sizes and a brick kitchen. The largest tent was for the operations, which averaged six daily. Of these six daily operations, about five were for entropion (trichiasis). The operating tent contained a folding operating table and a steam sterilizer for dressings and instruments. In an anteroom were suitably arranged chests for medicaments, instruments and other things required for operating. On moving the camp, all the apparatus could be packed into fifty of these chests and transported to the next stopping place. In a second tent the dispensary patients were treated by Arabian assistants, trained in Cairo, while a third was used as a waiting room. Two tents sheltered the hospital patients, who were chosen from the most severe cases, and those which required intraocular operations, while lid operations were subsequently treated in the dispensary. The other tents were for the dwelling quarters of the director and ten assistants, including nurses, administration officers, cook, policeman and attendants. The water was obtained by filtering the local well water through a Berkefeld filter. Patients came in large numbers, sometimes over one hundred in a day, mostly females. Instead of cards, tin tags were given, which could be hung around the neck by a cord; numbers on the tags corresponded to the history number, kept in the dispensary. These histories should be valuable later in determin-

ing the extent of the endemic conjunctival disease in Egypt. These flying columns have been severely criticized in some quarters, but the establishment of purely charitable permanent eye hospitals in all fourteen of the provinces of Egypt would require an immense sum of money. Moreover, the indolent character of the people and their poverty require the medical treatment to be brought literally to their doors, and many are undoubtedly cured who would otherwise not think of seeking assistance. It is also possible to reach the distant provinces in this way; the dispensaries can be looked on as pioneers in introducing hygienic measures, and it will be possible through them to determine which districts are in most need of medical care.

Roentgen Rays.—Kienböck (ref. in *Wochenschr. f. Ther. und Hyg. des Auges*, Feb. 25, 1904) demonstrated a case of sarcoma cured by the *x*-rays; before the medical society in Vienna. The growth had appeared in the nose seven years before, and in spite of repeated operations had invaded the adjacent structures and had produced exophthalmos on both sides, with atrophy of the optic nerves. Pain ceased after the first treatment, and, as the result of thirteen sessions during the course of three months, the tumor entirely disappeared, the eyes resumed their normal positions, and vision partly returned. The tumor was an endothelial sarcoma. Docent Dr. Grossmann also showed a similar case, which had almost entirely disappeared under the *x*-rays. In the discussion, Dr. Holzknacht called attention to the difference between carcinoma and sarcoma, in their relation to *x*-rays. It is known that the action of the rays rapidly becomes less effective below the surface, apparently because the greater portion is absorbed by the superficial layers; cells of pathologic tissue are much more sensitive to the rays than those of normal tissue. Carcinoma cells are only destroyed on the surface, while the deep infiltrating carcinomas of the skin are very little, and the carcinomas of internal organs are not at all, affected by *x*-ray treatment; on the other hand, as shown by the cases already reported, even deep-seated sarcomas, e. g., of the ovaries, react in a surprising way to the rays. The sarcoma tissue is not alone in this respect; it shares the peculiarity of enormous sensitiveness with that of mycosis fungoides, and of tumors of the lymphatic apparatus in pseudoleukemia. The action of the *x*-rays, therefore, depends not only on their penetrating power, and the absorbing power of the tissue treated, but also on its sensitiveness.

Concerning the Definitive Results of Phakolysis. Gelpke (*Archiv f. Augenheilk.*, February, 1904) gives the results of his experi-

rience during the last ten years in operations on the lens for myopia. He has operated on 169 highly myopic eyes, of which 11 could not be followed, and 38 were operated on less than two years ago; of the other 120 eyes (in 88 patients), 66 had been under observation more than four years. There was loss of the eye in 5 per cent., 3 from detachment of the retina, and in 2.5 per cent. vision was made worse. In 89.2 per cent., however, vision was increased from two to twenty fold. Curiously, the pseudoaccommodation, like true accommodation, was found to diminish as the patient's age increased. The visual field was widened in 35 per cent. of the cases. The difference in refraction was, on an average, 20½ D. A subsequent lengthening of the axis of the eye was not observed in any case, but occurred in 56.8 per cent. of the eyes not operated on. Gelpke considers as absolute indication for removal of the lens an amblyopia which can not be corrected, and progressive myopia. Macular changes which can not be improved, and the impossibility, for any reason, of wearing the correcting glasses, are facultative indications. The age of the patient is not essential. Cases in which correcting glasses can be worn satisfactorily, and those in which inflammatory changes are present in the equatorial region, with contraction of the fields, decrease in tension, and vitreous opacities are not suitable. If an absolute indication exists, even low grades of myopia should be operated on; otherwise, only cases higher than 15 to 20 diopters. In young patients the removal of a flap from the anterior capsule, with Knapp's knife, subconjunctivally, is excellent. In older patients Gelpke makes an incision 4 mm. long, 1 to 1.5 mm. from the limbus, and removes with his capsule forceps as large a piece of the capsule as possible, and tries to make one operation suffice. He believes the operation should be done on both sides, preferably after an interval of two years.

Contributors to the Technique of Iridectomy for Glaucoma.

Sommer (Niedermendig) (*Wochenschr. f. Ther. und Hnsp. des Auges*, March 3, 1904), in a case of glaucoma, with small, deep-sunken eyeballs and prominent orbital bones, made the iridectomy incision at the lower part of the limbus. The result was good until the eighth day, when a fresh, moderately severe attack of glaucoma appeared, which he could only explain as the result of closure of the angle of the chamber by fibrin masses from the only partly-absorbed hyphaema, which appeared at the time of operation. With eserine the tension was reduced to normal, and the subsequent course was normal. He advises, therefore, that the glaucoma iridectomy should always be made upward.

Periostitis and Osteomyelitis of the Roof of the Orbit. V. Auerman (*Arch. ophth.*, *Altona*, December, 1903) shows how dangerous expectant treatment may be in inflammations of the orbit, in a case observed by him. Swelling of the lids and exophthalmus had disappeared, palpation of the orbit was painless, and there were no signs of fluctuation, but after eight weeks abscess formation in the brain, which was followed by death. The autopsy showed a perforation of the posterior wall of the orbit. Where it is difficult to determine whether there is inflammation of the orbital tissues or periostitis, he advises the separation of the periosteum of the roof of the orbit and a search for the focus of inflammation. Even when the attempt is unsuccessful, any pus which may form is thus given a means of exit, which is without danger to the patient. In another case in which he used this method pus was evacuated from two places, although it was not found at the time of operation.

Concerning Hereditary Punctate Degeneration of the Cornea. Fehr (*Centralbl. f. prakt. Augenheilk.*, January, 1904) describes carefully three cases of punctate opacities of the cornea, which have been under observation in Hirschberg's clinic from sixteen to twenty-three years. The affection developed in two sisters and a brother, all healthy and vigorous individuals who were without any hereditary taint. It consisted in a progressive opacification of the cornea in both eyes, which led to a corresponding loss of sight. There were no decided inflammatory signs, either preceding or accompanying the appearance of the opacities. The disease began in the tenth or twelfth year and progressed steadily until after thirty years, the disturbance of vision had made work impossible. Aside from the disturbance of vision, slight irritability, and photophobia, there were no subjective symptoms. The cornea appeared of a diffuse gray color, strewn with white points and spots of various shapes. With a strong loupe the diffuse opacity was seen to be composed of minute points, by condensation of which the larger opacities were formed. The most opaque spots were situated centrally, while the periphery of the cornea was clearer. They involved chiefly the superficial layers, but at the limbus were somewhat deeper. The corneal surface was smooth, evenly reflecting, and had normal sensibility. There was no vascularity of the cornea, and no signs of involvement of the iris or deeper structures. Treatment was absolutely unavailing, whether local or general. Fehr believes that the condition is analogous to the cases of "grill-like" and "punctate" corneal opacity, the former of which have been described by Haab, Dimmer, Hauenschild and Freund, and the latter by Groenouw,

Fuchs, Chevallereau and Specq. Fehr points out, however, that in all these cases the surface is irregular, and fails to reflect evenly, as a result of a destruction of Bowman's membrane, while in his cases the corneal surface was smooth. From the grill-like keratitis, also, they are to be distinguished by the absence of the lattice-like arrangement of lines, and Fehr considers that they represent three different types of the same condition, for which he proposes the name of hereditary (family) punctate degeneration of the cornea, the "punctate" opacity of the cornea representing a connecting link between his cases and "grill-like corneal opacity." Microscopic examination was not possible, but he accepts as the cause what has been found in the other cases, viz., infiltration with hyaline masses, crystals of triple phosphate and sodium urate, or of a mucoid substance produced by degeneration of the corneal lamellæ. The condition is, therefore, degenerative and not inflammatory. The etiology of the affection is very obscure.

Violet Coloration of the Conjunctiva and Cornea by Anilin Pencil, Decolorization by Hydrogen Peroxid. - E. Praun (Darmstadt) (*Centralbl. f. prakt. Augenheilk.*, February, 1904) reports a case in which the conjunctiva and cornea were deeply stained by a piece of an anilin pencil, which flew into a boy's eye. Dionin had no effect, but a 3 per cent. solution of hydrogen peroxid (Merck), which was dropped into the eye on the fourth day, produced complete decolorization in the course of twelve hours. The instillation was quite painful, but produced only a slight irritation of the conjunctiva, which disappeared in a few days, leaving vision normal.

THE OPHTHALMIC RECORD

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Original Articles.

TRAUMATIC DISLOCATION OF THE LACRIMAL GLAND, WITH FOREIGN BODY IN THE ORBIT.

EDWARD JACKSON, M.D.

DENVER, COL.

(Illustrated.)

A. R., a healthy man, aged 44, was referred to me September 27 by Dr. C. H. Scott of Breckenridge, who had first seen him some days after his accident. On the night of September 12 he had been thrown from a wagon, falling on his head, which, he supposed, struck a sharp stone. He was considerably stunned, but quickly recovered from this. He received a wound in the upper lid parallel to the orbital margin, and about an inch long, from which there was very free bleeding. Three or four hours later a doctor examined the wound, cleaned it of foreign matter so far as could be ascertained, and closed it with several stitches. At this time the patient thinks the swelling was as great as at any time subsequently. The skin wound healed perfectly by first intention. But the redness and swelling of the parts continued. The eyeball was displaced forward 12 mm., downward 4 mm., and inward 3 mm. The width of the upper lid from the brow to its free border was 32 mm., its free border coming opposite the lower margin of the orbit. By raising the lid with the fingers the whole cornea could be exposed; but the power of voluntarily raising the lid was limited to 2 mm. The general appearance of the parts is well shown in the accompanying picture.

Vision, R., 4/30, partly; L., 4/4, partly.

The right pupil was slightly contracted as compared with the left eye, but reacted freely. The cornea was normal; the iris slightly discolored.

The eyeball was capable of very slight movement in all directions. When the right eye was held open there was single vision near the

center of the field, and diplopia increasing in all directions from this position. There was no sign of fracture of the orbit. The whole swelling was firm, but in the outer two-thirds of the upper lid was a mass, somewhat larger than an almond, that was comparatively hard—the dislocated lacrimal gland.

The tension of the globe was normal. With the ophthalmoscope the media were clear, or presented a slight, perfectly general haziness. There was irregular astigmatism, apparently due to a quadrate distortion of the cornea. The retinal veins were one-third larger than normal, and slightly tortuous. The left eye appeared in all respects normal, and was used as a standard for comparison. In the right upper lid the temporal 15 mm. of the scar was distinctly redder than the surrounding skin, and shows as a darker horizontal



spot in the photograph. There was moderate mucopurulent discharge from the conjunctiva.

September 28.—The case was examined by Dr. E. W. Stevens, who concurred in the view that the firm mass in the upper lid was the dislocated lacrimal gland. In the evening of this day a yellow point had appeared at the temporal end of the discolored scar. This was opened, and a mixture of apparently pus and tears to the amount of 1 fluidram was pressed out. A probe now entered $1\frac{1}{2}$ inches, first toward the median line, in a free sac extending in front of the lacrimal gland, and then backward.

October 1.—The opening has continued to discharge freely, and to-day it is found that the probe can readily be passed directly through the gland back into the orbit about 30 mm.

October 2.—Under partial local anesthesia with ethyl chlorid spray, an incision 25 mm. long was made in the line of the scar, parallel to

the brow. The gland, which was found to have a large disorganized tract passing through its center, was seized with forceps, separated by blunt dissection, and excised in two fragments. Behind the nasal end of the gland was found a cavity containing two fluid drams of pus. This cavity was carefully explored with the end of the finger by both Dr. Stevens and myself. It seemed to have smooth walls, which presented no local induration or point of special tenderness. The wound was left open.

October 3.—The nasal half of the cut had reunited. The cavity was washed with hydrogen dioxid and thoroughly packed with gauze. This treatment was continued daily.

October 7.—The pus cavity had grown much smaller. The incision was healed, except where it was kept open by the packing; the eyeball had retracted about 4 mm. (still 8 mm. in advance of its fellow). But the nasal end of the lid continued edematous and purplish. The conjunctiva was retracted within the lids, but continued to discharge rather freely.

October 14.—The sinus, regularly packed, had contracted, but continued to discharge freely, as did the conjunctiva. The nasal part of the lid was boggy and purplish. The eyeball still protruded 8 mm. The probe passed back $1\frac{1}{2}$ inches from the margin of the orbit, and for the first time a hard substance was felt in the bottom of the sinus.

October 15.—The probe, when introduced $1\frac{1}{2}$ inches, lay between the roof of the orbit and the hard substance below it. Toothed forceps were passed along the probe and made to seize the anterior end of the foreign body, which was extracted without pain and with but slight bleeding. It proved to be a splinter of hard, dry wood, of the sage bush, 18 mm. long by 3 wide by 2 thick. The grain of the wood was quite twisted. The end toward the surface of the lid showed a recently splintered fracture; the deeper end was comparatively rounded.

October 16.—Two more pieces of wood were similarly extracted, each about 18 mm. long, one of them 4 mm. by 4 mm. across, and the other 2.5 mm. by 1.5 mm. These splinters could be accurately fitted to the one previously extracted.

October 17.—A fourth piece of wood, rounded, 3 mm. in diameter, 22.5 mm. long, was removed. This lay, not parallel to the other pieces, but in a separate sinus branching toward the nose. Very careful search with the probe showed no other fragments. The sinus had been packed each day, since October 14, with formaldehyd gauze, which caused considerable burning for several hours after each dressing. But the discharge of pus had become greatly dimin-

ished and the swelling was noticeably less. On the evening of this day the patient was shown at the meeting of the Colorado Ophthalmological Society.

October 19.—A splinter 2.5 mm. long and 1 mm. in diameter was extracted from the depth of three-fourths of an inch. The septum between the two branches of the sinus was very distinct and firm, but no other foreign body was detected.

October 24.—A splinter 6 mm. long and $\frac{1}{2}$ mm. in diameter came away on the gauze. Another fragment was detected, this time in the temporal wall of the sinus, its front end only about 10 mm. back from the surface. It proved to be another rounded piece, 15 mm. long and 3 mm. in diameter.

October 28.—There was very little discharge from the wound, and the packing was diminished. November 2.—The gauze was omitted altogether.

November 5.—The wound had entirely closed, and all dressings were omitted.

November 9.—Vision R.= $\frac{4}{4}$, partly; left= $\frac{4}{4}$. The right eye presents no deficiency of lacrimal secretion. The cornea is still 6 mm. in advance of its fellow eye. The movements of the upper lid are very imperfect, but the palpebral fissure can be opened to the width of 6 mm. The conjunctiva is normal. Movement of the eyeball is normal in all directions except upward, where it is limited to 30 degrees. The patient left the city in search of work.

So far as I have been able to trace them, the previously reported cases of traumatic dislocation of the lacrimal gland are as follows:

Von Graefe¹ reported one in a boy, aged 10 years, who fell, cutting the upper lid on a piece of glass. A red, firm mass presented in the wound. There were exophthalmos and other evidences of hemorrhage in the depth of the orbit. The gland was restored to position and the skin wound united by sutures. Healing was slow, the nasal fourth of the wound having suppurated. In the fifth week there was still infiltration of the gland, but no fistula.

Goldzieher² saw a child, 1 year old, wounded in the outer part of the upper lid by a piece of glass. A dark, red, flesh-like mass protruded from the wound. The protruding mass was excised, and on examination proved to be the lacrimal gland. The skin wound was closed by sutures and quickly healed.

Panas³ reported a case, which was exhibited by Lariboisière. It was caused by a contused wound in the outer part of the upper lid. The gland was prolapsed into the wound. Careful reposition

² Goldzieher. *Pester Medic. Chirurg. Presse*, 1876.

¹ Graefe's *Archiv f. Ophthalmologie*, 1866, vol. xii, p. 123.

³ Panas. *Leçons sur les Affections de l'Appareil Lacrymal*, 1877.

of the parts and closure of the wound with a skin suture was followed by healing; but when the patient passed from under observation there was still some induration in the region of the gland.

Haltenhoff⁴ saw a child of two and one-half years, who three days before, had fallen in a road full of broken pebbles. The upper lid was swollen, and in its temporal portion presented a mushroom-like mass of grayish-red flesh, of too firm consistence for blood clot. This mass was 5 or 6 mm. thick, and 12 or 15 mm. in diameter. It adhered by a pedicle protruding through a horizontal wound in the skin. It was excised, and proved on examination to be the lacrimal gland. The wound was closed with sutures and healed by first intention, except that at one point a fistula remained, but was not long in closing. In a few weeks the cure was perfect, there being no difference in the appearance of the two eyes.

Bistis⁵ saw a girl one year old who had fallen upon the face upon stones. There was a wound in the temporal portion of the upper lid, near the margin of the orbit, from which a grayish mass, the lacrimal gland, hung by a pedicle. There was no exophthalmos. The gland was replaced and the wound closed by sutures. It united by first intention. But there remained a prominence of the lid, as if the gland had not been entirely replaced in its fossa.

A child when two years old had fallen and wounded the right upper lid upon a block of ice. The resulting wound healed spontaneously and rapidly, but when the child was 12 years old he was brought to Ahlstroem⁶ for ptosis, caused by a thickening in the outer part of the upper lid. The skin was normal, but beneath it was a mass the size of a small almond, slightly lobulated, and difficult to force into the orbit. Ahlstroem made an incision, and came immediately upon the lacrimal gland. This was removed. The wound healed promptly, and the ptosis was diminished. The gland thus excised was very firm, and measured 22 by 15 by 6 mm. Histologic examination showed it had suffered a chronic interstitial inflammation with marked increase of connective tissue.

Hilbert⁷ reports the case of a boy, 15 months old, who had fallen against the corner of a bench, receiving a wound from which a "piece of flesh protruded," and which continued to bleed freely for a long time. From a horizontal wound 1 cm. long near the outer canthus, protruded a red, rounded mass twice the size of a pea. Having in mind the case of Ahlstroem, Hilbert removed the protruding mass with a stroke of the scissors, and closed the wound

4. Haltenhoff, G.: *Ann. d'Oculistique*, May, 1895.

5. Bistis, J.: *Ann. d'Oculistique*, December, 1895.

6. Ahlstroem, G.: *Centralbl. f. p. Augenheilkunde*, October, 1898.

7. Hilbert, R.: *Klin. Monatsbl. f. Augenheilkunde*, July, 1900.

with two sutures. Healing was complete within a week, and no ptosis remained. The excised mass proved to be the lacrimal gland.

Mittendorf⁸ saw a young lady, aged about 20, who had fallen so that the index or middle finger of her brother's hand had struck the outer corner of her left eye. There was severe pain, which was relieved by ice applications. Next day the patient discovered a swelling on the upper temporal part of the eyeball, which could hardly be seen with the parts in their usual relation, but became very apparent on raising the upper lid. This swelling was perfectly white and almond like. The conjunctiva was freely movable over it. In other respects the eye was normal. The tumor was slightly painful to touch, and could be pushed up a little, but descended again as soon as the pressure was removed. At the end of three months the condition remained the same. The tumor was a little tender, but the lacrimal secretion undisturbed.

Villard⁹ saw a boy aged 8 years, who fell, striking on the sharp edge of a wine cask, or the copper spout, receiving a wound in the outer part of the right upper lid, from which protruded a reddish mass. At the end of forty-eight hours the physician who had first seen him sent him to Villard. The wound was horizontal, 16 or 18 mm. long, and within 2 or 3 mm. of the margin of the lid. The protruding mass was a pale red, somewhat the form of an almond, 15 or 16 mm. long, and covered with fibrinous exudate. There was no exophthalmos. Villard cleansed very thoroughly the prolapsed gland, using a 1-1000 sublimate solution. He then pushed it back as deeply as possible without being able to restore it fully to its normal position. The wound was closed by two deep and five skin sutures. These were removed on the sixth day, union being perfect, with no swelling or redness of the lid. Ultimately there remained no ptosis or swelling of the lid, a scarcely perceptible scar, and slight thickening beneath the wound. The secretion of tears on that side was not affected.

Kuropatwinsky¹⁰ reports the case of a girl aged 8 years, who was struck by a carriage pole, causing a lacerated wound 2 cm. long of the lower half of the eyebrow, with prolapse of the lacrimal gland. The gland was replaced. The wound was closed with sutures, and good healing followed.

Coppez¹¹ removed from near the middle of the left upper margin of the orbit a firm tumor, the size of a hazelnut, which proved

8. Mittendorf, W. F. *Trans. Amer. Ophthal. Soc.*, 1901, p. 382.

9. Villard, H. : *Revue Generale d'Ophthalmol.*, May, 1903.

10. Kuropatwinsky : *Doklady Otolistyezny*, May, 1903.

11. Coppez : *Archives d'Ophthalmologie*, June, 1903.

to be the lacrimal gland. The patient, a woman of 24, had injured her left brow by a fall a few months before. The tumor had appeared at that time, and the left eye remained free from tears when she cried.

Purtscher¹² records two cases. A two-year-old boy received an injury the day before, in a manner not exactly known. The right upper lid was moderately swollen. A wound 2 cm. long extended along the orbital margin, and the prolapsed lacrimal gland measured 12 mm. across and 4 mm. thick. The gland and wound were cleansed as thoroughly as possible, the former thrust back in position, and the latter closed with three stitches. Satisfactory healing ensued.

Purtscher's second case was that of a man, aged 23, who three days before had fallen 10 meters, lighting on his feet, but falling against a wooden fence, from which his wound had been received. He was slightly stunned, but not rendered unconscious. He had a gaping wound 2 cm. long, involving the upper part of the tarsal cartilage, from which a bean-shaped, pale red swelling, 13 mm. across and 4.5 mm. high protruded. The prolapsed gland was with difficulty freed from its attachments, the edges of the wound freshened, and the parts brought into place with three stitches. Good healing occurred in a few days, and in three weeks there was no ptosis or disturbance of the eye.

Of the above cases it will be noted that ten occurred in children of from 1 to 11 years of age. Villard, only last year, wrote that this injury occurred only in children, basing his conclusion upon the six cases he had collected. It has been pointed out that slight development of the upper margin of the orbit in childhood leaves the gland comparatively exposed. In my experience of two cases, spontaneous displacement of the lacrimal gland occurs in persons having comparatively undeveloped orbital margins.

Three of the four recorded cases of traumatic dislocation occurring in adults have been caused by injuries, totally different from the falling and cutting of the upper lid, that is so liable to occur to a child. In Mittendorf's case the gland did not fall forward or protrude through the skin wound, as in most of the cases, but seems to have been loosened from the normal attachments by the end of the finger, and then to have fallen downward upon the eyeball. A case of spontaneous dislocation of the gland into this position was reported by Noyes,¹³ who removed the gland.

In my case the mechanism of the dislocation seems clear. When

12. Purtscher: *Centralbl. f. p. Augenhelkunde*, December, 1903.

13. Noyes, H. D.: *Trans. Amer. Ophthal. Soc.*, 1887.

the first fragment of wood was extracted my patient remembered that in the place where he received his injury there was a good deal of sage brush, and admitted that it might have caused his wound. When all of the pieces of wood were removed and fitted together, it was clearly seen that this was what had happened: The man fell upon the dead, dry, splintered end of a piece of sage brush, which gave off on either side a rounded branch. This collection of splintered wood cut the lid, and passing upward and backward pierced the lacrimal gland, but failed to fracture the orbital plate of the frontal bone, and was deflected backward. Then, by the man's further fall or his attempts to rise, the stick, was broken off about three-fourths of an inch from its end, and at a depth of three-fourths of an inch within the orbit. As the patient's head was drawn away from it, the lacrimal gland, empaled on the end of the stick, was dragged from its fossa into the upper lid, where it loosened its hold on the stick and remained in the wound. The blood clot, already pretty firm when the patient reached a physician, prevented any complete restoration, and the injury to the gland was such that any return to a normal condition was out of the question. This case indicates that dislocation of the gland in the adult depends on a peculiar and unusual form of injury, and the other two cases occurring in adults confirm this view. Displacement of the gland by swelling of adjoining parts, or by cicatricial contraction, is possible; and cases of dislocation produced in this way are collected by Roy¹⁴ in his recent paper reporting a case of spontaneous dislocation.

In none of the reported cases does the diagnosis seem to have presented any difficulty. But it is not unlikely that an injury of the sort sometimes passes unrecognized, and that cases treated according to the general principles of wound treatment and ending in prompt recovery, occur more frequently than the records would lead us to suppose.

As to treatment: It is clear that in most cases the cleansing of the wound and restoration of the parts to normal position, and their retention by proper sutures will be followed by complete and permanent restoration. No case has resulted in permanent fistula or disturbance of the lacrimal function.

However, Mittendorf's case of slight soreness remaining after three months, and Ahlstroem's case, in which the gland was removed ten years after the injury, indicate that the ultimate result may not be entirely favorable; and that, in spite of temporary recovery, the disturbance of the gland may be such, that at a later

¹⁴ Roy, D.: Amer. Jour. Med. Sci., January, 1904.

period it will cause trouble. On the other hand, its excision is pretty sure to be followed by prompt healing, and ordinarily will cause no serious consequences. In a case presenting itself with extensive disorganization of the gland and suppuration fairly begun, complete excision seemed best. The removal of a part of the gland would be very likely to be followed by cyst formation, or fistula, rendering necessary a subsequent operation.

The restoration of upward movement in this case can be accounted for on the supposition that the superior rectus was pushed out of the way rather than directly injured. The elevator of the upper lid was more seriously damaged. Nine months after the injury ptosis still remains.

The problems presented by the embedding of a foreign body deep in the orbit in my case are also of great interest. When the patient was first seen by a physician there was already protrusion of the eyeball, great swelling of the lids, and the prolapsed lacrimal gland lay across the comparatively small wound. The foreign bodies were situated in the depth of the orbit, presenting by the end not over 5 mm. in diameter, and fully an inch beneath the surface. With the history of the cut having been made by a piece of rock, one would not have been justified in making a free incision to examine the apex of the orbit for splinters of wood. The character of the foreign body prevented the possibility of its recognition by the use of the *x*-ray or the magnet.

When I first saw the case the symptoms might have been accounted for on the supposition of orbital cellulitis from an infected wound, with severe hemorrhage. But the possibility of the presence of a foreign body in the orbit promptly suggested itself, and was never lost sight of until the pieces of wood had been found. In spite of this, after making a free incision and removing the lacrimal gland, repeated explorations with the finger and with the probe failed to locate the foreign body. It was not found until twelve days later, when the narrowing of the pus cavity and the breaking down of the tissue that concealed it, allowed the probe to be brought in contact with it. After the discovery of each piece the presence of other pieces was strongly suspected, and they were sought for. Yet the complete removal of the foreign material, the seven pieces, was accomplished on five different days.

A good many cases of foreign body, remaining for weeks in the orbit undiscovered, have been reported, and often in such a way as to imply negligence on the part of some practitioner, who had seen the case, but had not discovered the foreign body. The possibility of the lodgment of a foreign body in connection with such an

injury should be borne in mind, and every symptom that might indicate its presence and position carefully considered. But with only such a possibility or moderate probability before us, we are not justified in entering upon an exploration that might seriously damage the important structures which occupy the orbit. I have seen deep-punctured wounds of the orbit which might have contained foreign bodies heal completely, leaving the eye and its accessory organs undamaged in any respect: when such a good result would have been impossible, if the parts had been explored so thoroughly as to exclude the chance of a foreign body being present.

In the present case, while the period of disability would undoubtedly have been shortened, it is hardly possible that the ultimate result could have been any better had the foreign body been removed at the time of injury. And in the absence of any evidence definitely indicating its presence and location, it would have been quite impossible to have removed it, without rendering worse the ultimate result.

With regard to such cases this rule might be laid down: Bear in mind the possibility of the embedding of a foreign body in connection with every open wound of this region; but in the absence of definite evidence of its presence and location, do not endanger important structures in the search for it.

PARTIAL FIXATION OF THE GLOBE FOR THE IMPROVEMENT OF VISION IN CERTAIN CASES OF NYSTAGMUS.

J. ELLIOTT COLBURN, M.D.

CHICAGO.

(Illustrated.)

The management of cases of nystagmus, not due to occupation or central scotoma, has been limited to the best correction of the error of refraction attainable, and the treatment of such general conditions as seemed to be remediable. The improvement of vision resulting from the glasses prescribed is frequently hardly appreciable owing to the fleeting impression received. In most cases of oscillating nystagmus the seeing eye is strongly adducted, and the object seen is held as close to the eye as the accommodative power will allow.

In several of the cases reported by me in 1899 I was able to readjust the eye, by means of tenotomy and advancement, to the position of greatest rest in the straight-ahead pose, and secure improved

reading vision. The last three cases coming under my care have been greatly benefited by limiting the mobility of the eye by fixing the external rectus muscle, at or near its anterior fourth, to the orbital periostium and connective tissues at the external canthus.

The methods followed in securing the fixation of the muscle were as follows: After complete cocain anesthesia the eye was placed in a central position by an assistant, and a small wound made in the conjunctiva at the temporal cul-de-sac for the purpose of marking its position. The eye was then rotated inward, the conjunctival cut

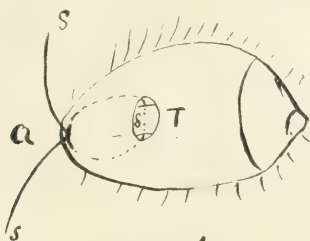


Fig 1.

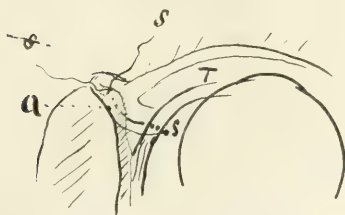


Fig 2.

enlarged, and the muscle exposed. The external orbital-muscular check are freely excised and the periostium wounded (Figs. 1 and 2). A doubly-armed suture was passed through the muscle, then deep into the periostium and out into the conjunctival sac, and tied. (Fig. 2). If the calculations have been correct, the eye will be somewhat loosely fixed in the median portion, moving quite freely upward and downward, but to a very limited degree inward or outward. In one case, chromicized catgut was employed, but the difficulty experienced in tying caused me to discard it, and, in my next case, to use silk. Care should be taken not to include the principal

artery of the tendon in the sutured portions. With a needle in the ordinary holder it is difficult to introduce the sutures into the canthus tissues. To obviate this difficulty, I have used a needle made for me by Chambers, Inskeep & Co. (Fig. 3.) The tension put on the fixed end of the muscle causes some pain and vertigo for two or three days. After the sutures have been removed the range of rotation will be found to be limited to 15 or 20 degrees.

CASE 1.—Male, aged 16 years. At 14 years of age had la grippe, followed by double optic neuritis, causing complete amblyopia of right eye, and vision=No. 14 Snellen at $1\frac{1}{2}$ inches in left. Oscillating nystagmus. Position of greatest rest, left eye in complete abduction. After being held in this position but a short time, and never perfectly quiet, it would spasmodically rotate to the median line for an instant, to be again strongly abducted. The errors of refraction, as nearly as could be made out= + 1 sph. An endeavor was made to relieve the spasm and place the eye in a position of rest in the median line by tenotomy and advancement. The result was not satisfactory. I then attempted my first fixation by attaching

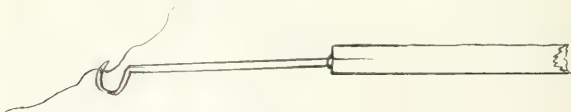


Fig. 3.

the external rectus to the orbital fasci and wall. Vision=Snellen No. 5 at 10 in. The oscillation was now hardly perceptible, and vision has continued to improve.

CASE 2.—Male, aged 23 years. Oscillating, irregular nystagmus. Position of greatest rest, head thrown backward, mouth open, nostrils dilated. Vision=8/200, and No. 10 Snellen at 12 in. Left eye was never used; walked with difficulty when eyes were open. Fixation of external rectus of right eye resulted in 20/20. Vision= + 1.75 + cy. axis 90° , and Snellen No. 5 at 14 in. While his field of vision was circumscribed, the average being 30° , he was able to walk without difficulty, and could locate objects at a distance.

CASE 3.—Miss A., aged 16. At 18 months of age had meningitis, resulting in complete loss of vision in left eye and perception of light in right. At 13 years of age her general health began to improve, and with it the visual acuity became better, though the fixed vision was limited to about 10 degrees. Nystagmus was marked. The movements were extensive, and alternately slow and rapid. An attempt at fixation was accompanied by nervous trembling move-

ments and occasional long ones. Projection was poor, and there was almost no visual sense of direction. R. V.=No. 16 Snellen at $11\frac{1}{2}$ in. Under Dr. Fütterer's care her blood count and color came up to normal, and with it the visual acuity improved to No. 15 Snellen. Under strychnia, electricity and massage the visual acuity improved to 12, but the sense of direction did not improve. I now attempted a fixation, with the result that No. 5 Snellen could be read at $2\frac{1}{2}$ inches, and the sense of direction became good, enabling her to pick up small 5 mm. objects, or to locate them at 60 to 80 inches distant.

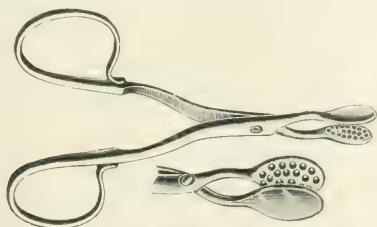
A SIMPLE INSTRUMENT FOR REMOVING THE GRANULATIONS IN TRACHOMA.

MARK D. STEVENSON, M.D.

Oculist to the City Hospital, Akron, Ohio.

(Illustrated.)

The chief objection to the various methods used in removing the granulations in trachoma lies in the fact that the healthy as well as the diseased mucous membrane is removed at the same time. The writer conceived the idea that an instrument could be made that would only express the granulations; and, while rupturing the mucous membrane, it would not remove or destroy it functionally.



Instrument made by F. A. Hardy & Co., Chicago

The instrument consists of two opposing blades, one solid and the other (or sometimes both) filled with as many round holes as possible, having sharp margins. The perforations should be at least 2 mm. in diameter, and drilled as close together as practicable, so that the sharp, narrow, intervening portions will readily cut into the lid substance. After having this instrument made, the writer learned that Kuhnt had already invented one involving a somewhat similar principle, but these are the advantages claimed for this particular instrument:

First. The perforations are of good size.

Second. The margins of the same are sharp and therefore cut the tissue better than when dull.

Third. The perforations are very close together in either one or both blades. If, on applying the forceps, there is much intervening space between these perforations, then the lid will be merely compressed and very little tissue will be forced but a short distance up into the perforations, thus thwarting the very object desired.

Fourth. Great pressure can be made with this instrument.

Fifth. The end of the small blade is more readily placed in the proper position under the lids.

After several instillations of a 4 per cent. cocaine solution, the lid is everted and the forceps applied, first on one side and then on the other. Portions of the tissue are thus squeezed into the holes; the mucous membrane ruptures, and the granules are expressed. After the operation, the mucous membrane somewhat resembles a pavement, and quickly heals. No new mucous membrane has to form, as is too frequently the case when other measures are used to remove the granulations.

A COMPARATIVE STUDY OF NORMAL AND SUB-NORMAL COLOR PERCEPTION IN ITS RELATION TO DISTANT SIGNAL LIGHTS.*

MORTIMER FRANK, M.D., B.S.,

Massachusetts Institute of Technology.

CHICAGO.

(Primary Communication.)

The term color-blindness, as implying difficulty or inability to see colors, is misleading, whereas the real defect in question is inability to discriminate between certain colors. Wilson, in 1854, found that not only did the chromatic sensibility decrease rapidly when the colors were removed at some distance from the eye of the "color-defective," but that color could be recognized correctly at short distances and not at longer ones, although still perceptible to one possessing normal color perception. This he styled "chromic-myopia," or "short-sightedness to color." Numerous writers have ascribed this failure to the law of inverse squares. It is, however, not true that the intensity of color varies inversely as the square of the dis-

*Read by invitation at a joint meeting of the International Association of Railway Surgeons and the American Academy of Railway Surgeons, Chicago, Ill., June 1, 2, 3, 1904.

tance; for example, if a piece of red glass one foot square is held in front of the eye at a distance of fifty feet, the image formed on the retina of the normal eye would be one-fiftieth of an inch square. Again, if the same object be held at a distance of one hundred feet, the image now would be one one-hundredth of an inch on each side, although the intensity of its color would be exactly the same as before.

For the study of the perception of color various methods are in vogue, the best known being Holmgren's test, and, though far the best hitherto devised, is defective in an important respect. According to this method, the person examined is directed to pick out from a heap of colored wools those that resemble a given specimen of a particular color. No doubt, such a test is satisfactory if the person to be tested were to be employed in watching for signals made in full day-light by the exhibition of surfaces which reflect various tints with different degrees of luminosity and of intensity of color. But the facts are quite different where discrimination must be made at night and in all kinds of atmospheric conditions by the exhibition of colored lamps. Examination of such applicants should be made, when possible, under actual conditions and circumstances as those met with in practice. The test-lanterns now used are at fault in that the colored glasses are arbitrary, with no uniform standard of saturation, and the quality of the various colored lights not based on any spectroscopic or photometric values. The colored glasses are not solid colors, and, in most cases, flashed, and transmit rays other than from one part of the spectrum. Of the various red glasses experimented with, the majority transmitted yellow and green rays, and a person defective in color perception would call them green when associated with a pure red glass, as was actually found. Again, some green glass allowed a great number of red rays to pass, and the "color-defective" believed it was red and confused it with red.

Believing that some attempt should be made in obtaining glass of solid colors for tests, as well as for actual signal lights, a series of tests are being carried out with different makes of semaphore discs to ascertain, first, the relative transparency of various red and green glasses; second, the liability to mistake one color for another, and, third, the relative distances at which they can be seen at night. Of all the glasses on the market, the best yet found is the "Nels Signal Glass," made by John C. Baird of Boston. The colors are red, green, blue and a peculiar yellow, the latter being used for the cautionary signal. The glasses are all solid colors, not flashed, and very transparent. They average in thickness about 0.15 of an inch.

In making the tests to determine how far a light of a given color could be seen, the observer moved back from the light until it was just on the point of vanishing in the darkness, and then measured the distance. Moving still further away, until the light vanished, the observer now walked forward until the light was again visible, and the distance measured. By repeating this several times the relative vanishing distance was easily found. For the purpose of observation, regulation signal lanterns were used, and stopped with a diaphragm having an aperture of 8.7 mm., corresponding to a distance of twenty feet under a visual angle of five minutes. This size opening was chosen so as to obtain a light feeble enough to disappear within the limits available for the purpose. In order to approach conditions of the railroad service, the tests were made at night and out of doors.¹

The record marked "A" was made by a person whose chromatic sense was good when tested by the Holmgren test, but was unable to recognize the difference between colors at twenty feet. That marked "B" was observed by the writer. The results are as follows:

Vanishing distances of the light with the C. M. & St. P. R. R. signal colors:

RECORD A.

C., M. & S. P. R. R., green-signal glass.....	20 feet
C., M. & St. P. R. R., red-signal glass.....	70 feet
C., M. & St. P. R. R., white-signal glass.....	300 feet

RECORD B.

C., M. & St. P. R. R., green-signal glass	45 feet
C., M. & St. P. R. R., red-signal glass.....	80 feet
Vanishing distances of the light with the Nels signal glasses:	

RECORD A.

Nels green-signal glass	45 feet
Nels red-signal glass.....	95 feet

RECORD B.

Nels green-signal glass.
Nels red-signal glass.

RECORD A.

Nels yellows-signal glass.

It will be noticed that no values are given for the vanishing distances of the Nels signal glasses in Record "B" and for the Nels yellow in Record "A." This is due to the fact that only 500 feet were available, and the lights still identified themselves at that

¹ The Nels signal colors were inserted in a lantern kindly placed at my disposal by Mr. Baird. The lanterns used for the purpose of comparison were loaned by the C. M. & St. P. R. R. and are the type in actual service.

distance. The actual vanishing values will be given in another paper when the work has been more fully carried out on a long piece of tangent.

To test the relative transparency of the corresponding colored lights, the lanterns were placed side by side with results as follows:

RECORD A.

C. M. & St. P. R. R. green-signal glass disappeared as
a light at..... 80 feet
Nels green-signal glass still visible as a light.
C. M. & St. P. R. R. red-signal glass recognizable as
a light at 15 feet
Nels red-signal glass still visible as a light.

RECORD B.

C. M. & St. P. R. R. green-signal glass disappeared
as a light at..... 80 feet
Nels green-signal glass still visible as green.
C. M. & St. P. R. R. red-signal glass disappeared as a
light at..... 80 feet
Nels red-signal glass still visible as red.

When comparing the lights of a given color, one is impressed by the intense brilliancy transmitted through the Nels glass, although seen at 500 feet, the limit of the available space. The quality of the light given out by the St. Paul lanterns was dull, even at a distance of only a few inches. The St. Paul green, when compared with the Nels green, appeared blue-green.

Photometric measurements of the relative transparency of the glasses were made with a Bunsen photometer. This method is not as reliable as the foregoing, due to the difficulty of comparing lights of different colors, as experiment shows that some colors affect the photometric readings more than others. The results with the Nels glasses, taking yellow as unity, while not the same as those supplied by Mr. Baird, are, nevertheless, exact enough for comparison.²

The confusion tests are reserved for another time.

To turn, now to the actual value of the above. Railway employes of the Record "A" class—"chromic-myopia"—passing the Holmgren test and the usual lantern test, would be dangerous men on roads using the ordinary signal glass. Recognition of signal lights must be made at long distances with the high rates of speed now maintained, for a train would be destroyed before timely warning was received by an engineer whose chromatic sense was of low de-

² Light transmitted by Nels yellow..... 35.00 per cent
Light transmitted by Nels green..... 3.90 per cent
Light transmitted by Nels red..... 10.00 per cent
Light transmitted by C. M. & St. P. R. R. green..... 1.5 per cent
Light transmitted by C. M. & St. P. R. R. red..... 5.1 per cent.

gree. Again, if a person with subnormal color perception had to discriminate between these signals in a heavy fog or snow, the danger is increased with the signal glass now in use; whereas, with the Nels glass, owing to its solid color and brilliancy, a great increase of distance is gained. Efforts should be directed toward making the lantern tests comparative by the simultaneous use of standard colors, such as the Nels glass or some other solid glass of equal transparency.

31 Washington Street.

A NEW TUBE FOR AND METHOD OF OPERATION UPON THE LACHRYMAL DUCT TO RESTORE TEAR DRAINAGE.

J. WINTER WAMBLEY, M.D.

PHILADELPHIA.

(Illustrated.)

In cases of common epiphora, without disease, there has been occasional resort to slight slitting of the canaliculus, as when there is apparent closure of the puncta which frequently occurs in age. The canaliculus should never be cut with the idea that this procedure would be a source of remedy, and should never be done except in complete radical operation.

Chronic epiphora, without disease, is not due principally to contracted puncta, but when the latter condition occurs and gives somewhat the picture of senile obliteration, the same condition takes place in all the lachrymal apparatus, particularly an atony or atrophy of the sac. Therefore, dilatation of the puncta alone rarely accomplishes a satisfactory result in these cases.

Tear drainage is illustratable by comparison to a Davidson syringe, the tear sac being represented as the bulb and the valves in the duct as the valves of the syringe. During various movements of the eyelids, or in conjunction with the movements of the eye or facial muscles, there is caused a contraction of the sac, which normally has an expansive function. The sac, being filled with tears, is squeezed upon and the tears forced down the canal into the nose, return being prevented by valve-like functionaries. The sac always contains fluid. When the canaliculus is slit or an instrument is passed through the drainage apparatus, it is endangered. No instrument should be passed in any part of the lachrymal duct unless the duct is practically destroyed and a radical operation to restore drainage is necessary.

There has never been heretofore an operation devised which would, in a bad case, insure tear drainage, or consume or retard a normal flow of secretion which nature has undoubtedly intended for the purpose of lubrication and for the necessities of a transparent cornea.

Some operators claim that when the sac has been removed the normal amount of lachrymation is lessened to what could be absorbed, evaporated, or consumed. This, in itself, has not been so in what I have seen, and it is poor physiology. There is no sympathetic fact, all things being equal, that by the sac's removal it would lessen lachrymation, any more than if water running from a spigot, by removing the washbowl, would lessen the flow. The tear drainage apparatus exists in all animals that possess the higher organized eye—the moist eye—and without the help of man in excising the sac nature would have obliterated the duct. The theory of Darwin, that obliteration from disuse or development by use, is correct, and is recognized by all scientists.

The quantity of lachrymation can be altered only in two ways, i. e., by relief of irritations or resection of part or whole of the lachrymal gland itself. Lachrymation varies in its amount with different individuals. Some have abnormal quantities which are normal to the person, this being separate from excessive amounts caused by irritations.

It seems that removal of the sac might have been prompted by chronic pus and used as a last expedient to cut it off. As a matter of fact, chronic pus is caused by a collapsed and deranged canal, with pocketing and retention of secretions. Removal of the sac rids of pus, but blocks drainage.

The value of an operation is self-evident in the worst form of cases, particularly for the restoration of tear drainage, too—as an instance, excessive lachrymation natural to the patient, no condition being present which would cause the excess, or normal secretion with deranged drainage.

The particular subject of this paper is the restoration of tear drainage in destroyed canals in bad cases, from whatever cause.

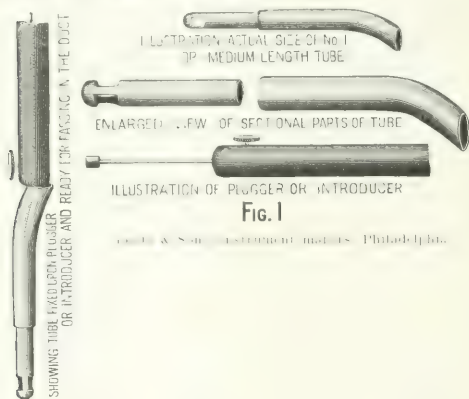
The following are the conditions which call for radical operation in the permanent establishment of good tear drainage: (1) Abscess and destruction from disease in any part of the canal; (2) congenital functionalities; (3) senile infiltration or atresia of the sac; (4) chronic epiphora, with or without disease; (5) dilatation of the sac; (6) chronic fistula; (7) chronic pus.

The principle of the operation here set forth is in the introduction of a tube, and a tube must be used.

Large probing will not keep the duct patulous when probing is discontinued. It does not matter how large an opening may have been forced in the duct, there will be, in short time, natural infiltration swelling, closure and collapse, if the lumen is left unresisting.

The thing to remedy these evils is a proper tube, but heretofore there has been no success with canulas, and few operators use them to-day and if they do, from the old patterns, they receive no testy result.

There are three points which make the lachrymal canula a success, as the one illustrated (Fig. 1):



(1) Sufficient caliber (3 millimeters) to overcome capillary attraction, thereby preventing mucous plugging. (I experimented with various-calibered tubing, and found that it took a caliber of 3 mm., to make fluid drop *from* the tube. The small calibers of the old canulas are one of the causes of failure. There is more or less mucoid matter in lachrymation, and this makes it even more necessary to have a caliber to overcome capillarization.) (2) A proper curve and opening at the top, so as to correctly engage the entrance at the inner canthus and that the tissues will not project over its orifice; but the tissues or lips of the canaliculus must be even with the edge of the opening of the tube, as by this means there will be no overlapping that would impede the orifice of the tube; this insures a proper way for the entrance of tear secretion to be drained by simple gravity. (3) The tube must correspond to the duct's length, so that the inferior end will, in all cases, rest on the floor of the nose and at the duct's exit beneath the inferior tur-

binate body, particularly if the latter should be hypertrophied; otherwise, if a tube have not such support here, any tube would certainly drop out of place.

The length of the duct varies in different individuals, as much as three-fourths of an inch in extreme cases, and a tube must accurately correspond or be suited to the length of the duct in every case.

The tubes here illustrated are made in two lengths, No. 1 and No. 2 tube. They are telescopic, composed of two sections, and the No. 1 tube, which is used in the majority of cases, will reach from 30 to 42 millimeters, by its telescopic construction. The No. 2 tube is very seldom necessary, excepting in very long ducts. The No. 2 tube has a range of from 41 mm. to 53 mm. The material of which the tubes are made is silver or gold. The silver tubes sell for \$1.80 and will last numbers of years, while gold is permanent. The tube should be worn during life.

It will be noticed from the illustration that the lower end of the tube is rounded with side openings for exit; the rounded end rests on the floor of the nose.

The operation is here stated in detail. The patient is given an

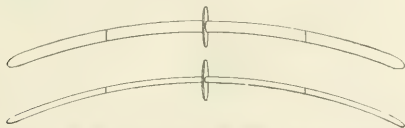


Fig. 2. Illustration half size, represents the smallest and the largest No. 8 probe. There are three probes to the set, comprising six sizes.

anesthetic. I find that nitrous oxide is admirably adapted for this short operation, and I take my cases to a neighboring dentist who does the administration. The duct is opened in the usual way, with the only difference of well opening the sac by somewhat lifting the knife above. After using the knife, rapid dilatation is done with a special set of probes (Fig. 2).

These probes have a projecting washer, fixed about the middle, which is nine-sixteenths of an inch in diameter, and on the plate is also stamped the size number of the probe. This washer about the probe allows for strong purchase, as sometimes much pressure is needed when dilating a tight bony canal. These probes are gauged according to the English wire gauge—the smallest, No. 13, to the largest, No. 8, making three probes, and six sizes in the set. The probes are not so curved as Theobold's; this is for the purpose of making the canal straight as possible in rapid dilatation. The curve of the probe corresponds to an eight-inch radius.

The operation, with introduction of the tube, is done in less than three minutes. In passing the probes for rapid dilatation, the probe should every time be passed down until the floor of the nose is distinctly felt, so as to dilate evenly throughout, remolding any tendency of a malformed or crooked canal; beginning with the smallest probe, and ending with the largest, No. 8, passing each increasing size in order. There is a ring marked on the probe which is 41 mm. from its end. This is to indicate, by its position, that if the ring shows above the canaliculus while the probe is in the duct, its point resting on the nasal floor, it then indicates the use of the No. 1, or medium length, telescopic tube; or, if the marked ring on the probe should pass below, as in a long duct, it would indicate the use of the No. 2, or long, telescopic tube. As before stated, very few cases out of a hundred would require a long tube.

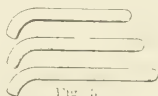
As to the method of introducing the tube: Having noticed from the ring, while the largest probe was in the duct, which length tube (No. 1 or No. 2) should be used, the probe is withdrawn and the wire part of the tube introduced (Fig. 1), is passed down the duct until it touches the nasal floor, and then the set screw on the handle is loosened and the handle pushed down on the little wire which runs through it until the handle meets with the edge of the lower lid; then the set screw is tightened and withdrawn. This would indicate the approximate length to adjust the tube before introducing. After this measurement, the wire plugger or tube introducer is passed into a tube and the sections of the tube are slid together or pulled apart until the tube is adjusted to the introducer, the plugger filling opening at the end of the tube. Now the tube with the introducer passing through it is put into the duct, about the same way as one would introduce a probe. Withdraw the plugger, and the tube remains in. This might seem as a verbose description, the manipulation being so simple and quickly effected. The tube may be placed in another way, and without this measuring with the tube introducer, of the duct's length, i. e., after extracting the No. 8 or largest probe, take the selected tube and pull the sections out for its longest telescopic effect: then take the little plugger and pass it in the tube. Now, with the fingers, the extended tube is placed in the duct, and, when it is felt that it touches the nasal floor, extract the wire and press down the upper extending excess of the tube to its proper level with the canaliculus.

I may also state that one of the objects of the plugger is to prevent material from engaging in the opening at the base of the tube during its passage down the duct: in this way the tube is kept free until it is left in its position.

The patient should be seen about the fourth day. Sometimes the whole tube has a little tendency to settle below (about 1 mm.); this is due to the soft tissue on the nasal floor. If such settling is noticed, with smooth forceps lift the tube entirely out; it comes out very easy—no annoyance to the patient. Then pull the tube a little apart, having previously noticed about how much pulling apart would be necessary to make it up, or to lift the tube to its proper level at the canaliculus. Then reinsert.

Generally one after-adjustment is necessary to make the tube of accurate length and to nicely fit to its good position at the inner canthus.

After the initial operation, one would be surprised how easy it is to lift out and replace the tube for accurate after and permanent adjustment of its length, causing the patient absolutely no pain. Figure 3 illustrates a short aluminum probe. Each size is made in three lengths—35, 40 and 45 mm.—so that when they are worn in the duct not too much probe will be left projecting from the inner canthus. These probes are useful in gradual dilatation, the object being to change each size at intervals of two or three days, until the largest size (No. 8) is introduced. It is not particularly painful in



this manner any more than the regular system of probing, but it is slow and necessarily has not the advantages of quick dilatation. In some strong and not particularly nervous individuals, rapid dilatation may be done without an anesthetic.

This is the operation to do when there is or has been an abscess with necrosis. The rapid dilatation has a great curative effect on necrotic tissue, and the presence of the tube chokes off erosive sinuses, which cause the disease. The advantage of this tube in chronic pus cases is remarkable; almost instantly the process stops, because the wall of the metal tube is against the fleshy duct and quick absorption takes place of old pockets which might have been minute, holding decomposed and stagnant secretions. This condition is obliterated by the natural distension caused by the tube, while regular drainage is carried on through the lumen of the tube.

Instead of bothering, sometimes for years, with these heretofore most unsatisfactory and annoying cases, an operation is done which lasts but a few minutes, and for which the result is absolutely fine:

practically no after-treatment or future annoyance and uncertainty on part of the patient or surgeon.

I may state that sometimes there is some bleeding, but not more than usually occurs in the regular duct incision.

At the time of operation the surgeon should have the two tubes of different lengths, No. 1 and No. 2—his own, and with which he may exchange either for one the patient may have procured, as, especially in hospital cases, if the patient is given an order to buy his own tube at an instrument-maker's.

The extra instruments necessary for this operation are: (1) Set of both tubes, No. 1 and No. 2; (2) the tube introducer or plugger; (3) set of (four) rapid-dilatation probes.

The operation is unique and the results are most gratifying, particularly in cases that have been previously operated on and frequently probed in the old way. Some had used the common forms of canulas, and to these individuals, particularly having had knowledge from previous experiences, the present form of operation gave the greatest comfort. About one hundred cases have been operated on with use of this tube, and never a bad result, and there is absolutely no feeling on the part of the patient of even the presence of the tube. The opening of the tube at the inner canthus does not show, and can not be seen except by close inspection.

In reference to one more point about the tube: Should the two sections of the tube work too loosely together, and it is desired to have the larger part grasp the smaller more tightly, it is only necessary to separate the sections and slightly pinch the end of the larger section of the telescopic tube, then combine the two sections. Ordinarily, they fit tight enough, as all that is necessary is that they will hold themselves together. Unduly working the tube, as manipulation from curiosity, etc., wears it snug fitting, which is easily remedied as above stated.

POLYPS IN THE LOWER CANALICULUS.

GEORGE F. LIBBY, M.D.

DENVER, COL.

History.—Mrs. P., aged 40, in Colorado because her husband's illness and death from phthisis had left her own health impaired. In May, 1899, her right eye felt as if a pin were sticking into it at the inner canthus, and pain was noticed on reading. The use of an astringent collyrium and one of the silver preparations by a colleague gave relief. There was no recurrence of the above symptoms until October, 1900.

The patient consulted me Feb. 6, 1904, presenting the following symptoms: Moderate swelling of the right lower lid over the canaliculus, localized redness and a slight discharge of purulent matter, more noticeable in the morning. No complaint of epiphora. A polyp filled the lower punctum and protruded about 2 mm. above it. This was removed by gentle traction. It apparently arose from the lower part of the canaliculus, opposite the punctum.

On February 8 the polyp returned, together with the swelling and discharge. February 20—This growth had been removed and had as promptly returned at intervals of two days, for two weeks, and on that day a second polyp had burst through at the inner angle of the lower lid, at the junction of the skin and mucous membrane.

Operation.—Under general anesthesia from ether, the right lower canaliculus was slit with a Weber's blunt-pointed canaliculus knife down to the lacrimal sac. The polyp described above was found attached to the lower wall of the canaliculus, opposite the punctum; a second, attached to the lower wall of the canaliculus, opposite the inner angle of the lid, and seven others between these two points. They were the size of grape seeds. All were carefully curetted out, the lower wall of the canaliculus and adjoining tissue to depth of 5 mm. being found destroyed. As soon as a free opening had been made into the sac a mass of caseous, yellowish-green pus as large as a medium-sized pea came from that cavity, apparently. Theobald's probes were passed down into the nose, up to No. 13, and a lead style was inserted.

After-Treatment.—The lacrimal canal and sac and nasal duct were cleansed by syringing with solution of boric acid, followed by solution of hydrastis, daily for ten days, and every second or third day for ten days more, when the style was removed.

Result.—June 15, 1904. There has been no epiphora or other annoying symptom since the third week following the operation. Glasses have never been worn, or, apparently, needed, because the pain which accompanied reading during the attack of dacryocystitis disappeared when the above-described pathologic conditions were cured. The patient's health and spirits were markedly improved, which, I believe, was due to three factors: First, and most important, continued residence in Colorado; second, relief from a false but very great anxiety as to the possible damage to the eyeball and to the sight from the disease of the tear passage, and, third, the removal of the point of infection in the sac.

Note.—From an article by Dr. S. C. Ayres, in *Archives of Ophthalmology*, July, 1903, entitled "Polypus of the Lower Canaliculus," I learn that eight cases of polyp of the tear sac and two of the

canaliculus comprised the reported cases of this formation in these two situations, up to a year ago. They were assigned as follows: Tear sac: 1772, Janin; 1822, Wiess; 1834, Grillo; 1854, Desmarres (1) and von Graefe (2); 1899, E. Hertel and Strzemeski, 1 each. Canaliculus: 1879, De Wecker; 1898, Parisetti. Adding to these the case reported by Ayres and one by the author, gives four of this origin, to date. Ayres states (*loc. cit.*): "In nearly all cases of polypi of the lacrimal passages the growths originate and develop in the tear sac." If his case is classed as one that had its origin in the canaliculus, the reported cases of polyps of the tear passages would show that one-third originated and developed in the canaliculus. But, of course, it is probable that polyp of the sac would more often escape notice than the same condition in the canaliculus; so that the location and tissue which is more favorable to the development of this neoplasm may, after all, be far more frequently affected.

A CASE OF ANISOCORIA.

HENRY D. STEELE, M.D.

PRINCETON, ILL.

The following case is reported for the reason that it shows some points of special interest as to the etiology, and the result obtained from the treatment employed.

Miss H., aged 18 years, a strong, robust German girl, giving a negative history, both family and personal, regarding any constitutional diseases, called to see me on April 2, 1904, with a history of having been a sufferer for several years from severe and frequent left-sided frontal headache. The attacks were accompanied by a sense of fullness and pressure, and followed by a profuse, ropy discharge from the nose.

About three weeks previous to the time I saw her she had just recovered from an attack of la grippe, which dates the beginning of the eye trouble.

At the time of her visit to my office she complained of severe pain in the left eye and about orbit. Left pupil dilated to 8 mm.; no reaction to light, accommodation or convergence. Retina and optic disc very pale, veins somewhat engorged, T. normal. There was no muscular imbalance, and no ptosis. O. D. V. 15/20 + O. S. V. 15/70 —. I was unable to find any evidence of cortical lesion, and she expressed herself as feeling very well indeed, with the exception of the pain.

On examining the nose I found in the left nostril a large septal growth opposite the middle turbinal, which occluded the passage to the superior meatus to such an extent that some force was required to pass a probe between the septum and middle turbinal, which caused a marked increase of pain in the left eye. Believing this to be the source of the trouble, I decided to remove the obstruction, and thereby obtain free drainage and ventilation of the upper nasal fossa and accessory sinuses. This was done on April 4 by removing the septal growth. The next day she reported no pain, and up to the present time there has been no recurrence. On the 7th—Diameter of pupil, 7 mm.; slight reaction to light, and an improvement in color of retina and disc. On the 16th—Pupil same diameter as the right; reaction to light, accommodation and convergence normal, and color of retina and disc normal. On the 19th—O. D. V. 15/15 — O. S. V. 15/30 +. On the 23d—O. D. V. 15/15, O. S. V. 15/15. It seems evident that the ocular symptoms were due to the nasal occlusion, as there was no treatment employed but the surgical work done in the nose.

I have carefully searched the literature at my command, and am unable to satisfy myself whether the disease was communicated to the eye through the medium of the fifth nerve from pressure stimulation, or that the optic nerve, and possibly some fibers of the third, were affected in some way by the toxins developed by the grippe infection.

DIONIN IN OPHTHALMIC THERAPEUTICS.

ALBERT E. BULSON, JR., B.S. M.D.

FORT WAYNE, IND.

Among the newer synthetic remedies offered for the treatment of eye affections, dionin is one of the latest to command attention. Chemically, dionin is known as ethyl-morphin hydrochlorate. It is a white crystalline powder, soluble in about seven parts of water, $1\frac{1}{2}$ of alcohol, but not at all soluble in ether or chloroform. To Woltberg of Breslau belongs the credit of the discovery of the value of dionin in ocular therapeutics, while to Darier of Paris can be credited extensive use of the drug in a variety of ocular affections, and numerous publications of reports upon the use of the remedy.

Dionin may be used in a solution of from 1 to 10 per cent., or in powder form. It is commonly used in a 5 to 10 per cent. aqueous solution, one or two drops being instilled into the eye every two

hours. It produces marked vascular injection, with edema and extravasation of lymph, but without pain or discomfort. In fact, it possesses profound analgesic power, thus making it of particular value in the treatment of such painful affections as iritis and glaucoma. The pronounced reaction lasts from six to twenty-four hours, according to the individual case, and even with repeated applications the effect diminishes until at the end of four or five days even the powder produces no appreciable effect when applied to the eye. The beneficial effect is so pronounced in the majority of cases that the drug may truly be said to be one of our most valuable therapeutic remedies. Its action is largely lymphagogic, favoring the extravasation of lymph and the depletion of the congested deeper circulation.

Dionin has been recommended for use in post-operative complications, iritis, glaucoma, interstitial keratitis, intraocular hemorrhages, vitreous opacities, corneal opacities, and sympathetic ophthalmia. The writer has had experience with the drug in intraocular hemorrhage, iritis, glaucoma, corneal ulceration, and post-operative iritis, and capsular opacities following cataract extraction. While the good effects of the remedy are more pronounced in some individuals than others, as it is also more pronounced in some diseases than others, yet in all the cases in which dionin has been used the results have been invariably beneficial, and in some instances surprisingly so. In two or three cases of iritis in which the adhesions had resisted even the stronger solutions of atropin, a combination of atropin in 1 per cent. solution and dionin in 5 per cent. solution brought about not only complete dilatation of the pupil, but early cessation of all pain, reduction of inflammation, and absorption of the pupillary infiltrate. In glaucoma dionin in 5 per cent. solution not only produced relief from pain, but seemed to have a pronounced effect in assisting eserine to reduce tension. Following an iridectomy for glaucoma, which was accompanied by profuse hemorrhage into the anterior chamber, the instillation of dionin solution produced an earlier clearing of the anterior chamber and pupillary space than has ever been previously noted in similar conditions. Hemorrhage into the vitreous, as well as hemorrhage into the anterior chamber, even when profuse, has, in the instances in which the remedy has been used, disappeared with marvelous promptness following the employment of a 5 to 10 per cent. solution of dionin. Capsular opacities following cataract extraction have disappeared under the influence of dionin when under ordinary circumstances a discussion at a later date would seem to be indicated. In fact, the remarkable results

secured by dionin in clearing the pupillary space following cataract extraction has led to the belief that with the more or less general employment of dionin after cataract extraction secondary operations will be greatly lessened in number.

The results secured by the writer are no more than those secured by others who have reported their results, and while experience has not been sufficiently great to warrant such enthusiastic commendation as has been given by Darier, yet it seems safe to prophesy that dionin will be assigned a place perhaps not second to any at present known remedy in the treatment of many of the more serious eye affections.

To one who for the first time employs dionin, the infiltrated and swollen condition of the conjunctiva and eyelids, following the application of a 5 or 10 per cent. solution, may cause alarm. Darier, from a large experience in the use of the remedy, points out that this infiltration is a part of the beneficial therapeutic effect, and is in no sense dangerous. In the experience of the writer, not less than a 5 per cent. solution, and more frequently a 10 per cent. solution, should be employed and used repeatedly during the first seventy-two hours, and the more pronounced the reaction the better the after-results. Furthermore, the beneficial results must be secured during the first seventy-two hours, or it is not secured at all, for the reason that the effect of instillations of dionin become practically *nil* at the end of that time. So far as has been noted the experience of no observer whose observations have been reported indicates that any ill effects from the use of dionin have occurred, and, therefore, the employment of the remedy should have a wide application in the treatment of a large variety of serious diseases in which it seems applicable.

Correspondence.

THE ANGLE GAMMA.

To the Editors:—In the article on "The Angle Gamma and Its Relation to Strabismus," published in THE RECORD of February of this year, I neglected to give credit to Dr. G. C. Savage, who first brought forth the definition of the angle gamma used in the article.

Being in Breslau, Germany, at the time, I had no English library to which I could refer.

Trusting that this acknowledgement will be satisfactory to Dr. Savage, I am, very sincerely,

FRANK E. BRAWLEY.

103 East Adams street, Chicago.

A NEW CATARACT KNIFE—AN ANSWER TO DR. WILKINSON.

DENVER, COLO., July 5, 1904.

To the Editors:—I am greatly indebted to Dr. Oscar Wilkinson of Washington, D. C., for his letter of March 28, 1904, published in the April number of this journal, wherein he calls my attention to the use Mackenzie made of what was then known as a "secondary knife," and which was largely used for enlarging the wound at the angles. After some effort I found Mackenzie's fourth edition of "Treatise on the Eye," and read very carefully that portion referred to by Dr. Wilkinson. I am free to confess that Mackenzie is ahead of me. He undoubtedly uses the "secondary knife," which is blunt-pointed, not probe-pointed, for the purpose my knife was made for, therefore he is entitled to the credit which I tried to claim.

I had never seen a copy of Mackenzie's book, and I regret that I had not, as it would have saved me publishing the account of my knife. Besides all this I find I might have learned a great deal more than that by a careful reading of the book, as it certainly is one of the most remarkable works on the eye that I have ever seen. A careful study of this book can not help but impress one with the feeling that we have not made such wonderful progress in the last fifty years as is believed.

The only excuse that I can offer for my knife and the technic of its use is that it is hoped that the revival of the subject will help

to keep this worthy procedure from being forgotten, as it seems was near to being the case.

My knife is easily obtained from Tiemann, and the technic described in my article in February (1904) issue of the RECORD, is easily found, and I feel sure that if the knife is used as described, many an eye will be saved a mutilated iris.

I desire to thank Dr. Wilkinson for calling my attention to the prior claim of Mackenzie.

Very truly yours

MELVILLE BLACK, M.D.

TRAVELING OPHTHALMIC HOSPITALS.—About ten years ago Russia instituted the traveling ophthalmic hospital, and in 1901 had 32 operations. It is merely an ophthalmic hospital or dispensary, which is set up in a community and remains there until all the persons whose eyes need attention have been treated, when the dispensary moves on to another adjoining field. The aim was to combat trachoma in particular, which is extremely prevalent in Russia. The expenses of these leisurely traveling hospitals are paid out of a fund instituted by the Empress. Sir Ernest Cassel of Great Britain placed at the disposal of the Egyptian government in 1903 the sum of \$200,000 to be applied for a similar purpose in Egypt. A recent article in the *Wochft. f. Therapie u. Hygiene des Auges* describes a visit to the Egyptian hospital when it happened to be stationed near the town of Menouf in the western part of the Nile delta. The hospital consisted of eight tents and an adobe kitchen. Two tents were set apart for patients who had undergone intraocular operations and one tent for out-patients. The largest tent was the operating room, and the operator, his trained Arab assistant, the nurses and servants, about a dozen persons in all, occupy three other tents. About six operations are done every day, the majority being for entropium. Large numbers of patients apply for treatment and the *Lancet*, in commenting on these facts, remarks that the large proportion of women shows that the hospital has gained the confidence of the Mohammedan population.—*Journal of the American Medical Association*.

DAMAGES FOR WRONGFUL DESTRUCTION OF AN EYE.—The Kansas City Court of Appeals holds, in the case of Orscheln vs. Scott, that a verdict of \$2,500 is not too much for the wrongful destruction of an eye, there being no mitigating circumstances connected with the injury.—*Journal of the American Medical Association*.

Reports of Societies.

CHICAGO OPHTHALMOLOGICAL SOCIETY.

May 10, 1904.

Dr. Oscar Dodd, presiding.

CONGENITAL LULS. WITH INTERSTITIAL KERATITIS AND CHORIO-RETINITIS.

Dr. George F. Suker presented this case, in a young lady, 17 or 18 years of age, which was interesting on account of the well-marked Darier-Hutchinson tooth, peculiar to this disease.

PERSISTENT HYALOID ARTERY.

Dr. F. B. Loring exhibited this case. The young lady had presented herself at the clinic on account of difficult vision, having always felt that she was nearsighted. She was found to have a marked choroiditis, but the point to which he called attention was in the left eye; a delicate semitransparent band, starting at the front of the disc, branches over the left side and terminates in a small bulb-shaped extremity. Just as it crosses the disc margin there appears to be a small branch, the upper portion of which is slightly more anterior than the other. The straight portion has taken the usual course of disappearing, the branch remaining.

PROBABLE PRIMARY SARCOMA OF THE IRIS.

Dr. W. A. Barr (by invitation) brought before the society this case. The patient, a man of 42 years of age, a strong, healthy man, a principal in one of our city schools for many years, had a pigment deposit, something like velvet in appearance, on the posterior surface of the iris. He was first seen last November, when he gave a history of having had three preceding spontaneous hemorrhages of the iris—the first, two years before, having come on without warning. There was no inflammation of the eye, and the vision, as compared with the other eye, was normal. Ten months later the second hemorrhage occurred, filling the anterior chamber. It was readily absorbed, the eye cleared up and was normal as far as the patient had observed. Five or six months later (last February) the third hemorrhage occurred. About a year preceding the first hemorrhage the patient got up in his sleep hurriedly, and struck the edge of the door. He was rendered unconscious by the blow, but there were no serious consequences as far as vision was concerned; but at about this time his attention was called to the

appearance of the eye, the pupil being slightly oblong. When first seen by Dr. Barr his vision= $20/30$; tension normal. About two months ago he came with vision reduced to $20/120$, tension of plus 1. He was placed on eserine. At present there is cupping of the disc, the central vessel pushed to nasal side, and optic atrophy. There is an increase of the pigment deposit until it has practically reached the superior border of the pupil; the tension is $+2$. The vision is now practically reduced to $8/200$.

In the discussion of this case, Dr. Casey A. Wood said he was unable to persuade himself this was a case of primary sarcoma of the iris, sarcoma of the iris rarely rising from the posterior surface of that body, but rather from the anterior. The glaucomatous condition is quite marked, and there has undoubtedly been some pressure absorption. Dr. Wood thought it probable that the sarcoma was primarily in the ciliary body, and asked if Dr. Barr had noted at any time any vascularization in the region of the tumor.

Dr. Barr, replying, said he had located the growth in the posterior layers of the pupillary margin, and that he regarded it as a primary sarcoma. There had been no vascularization, except following the three hemorrhages, at which time there was slight inflammation. He thought there was but one treatment, and that was enucleation.

Dr. Wood added that he considered it best, in these cases, whether primary or secondary, to enucleate, following with the Röntgen rays for a period of six months, especially where there is liability of recurrence.

HYALINE DEGENERATION OF THE CORNEA.

Dr. Frank A. Phillips presented a case of hyaline degeneration of the cornea, which had been previously shown to the society, and which was brought now to show the progress it had made. At first it was easy to see the fundus, but now owing to the irregularities of the cornea, it was difficult to see it. The cornea had not been abraided, as no stain was possible with fluorescein.

THROMBOSIS OF THE CENTRAL RETINAL VESSELS.

Dr. Phillips also presented this case. Eight weeks ago had erysipelas, following which blindness was observed. There is atrophy of the discs, and the vessels show a marked degeneration, there being present a perivasculitis and thickening of their walls, ophthalmoscopically appearing as sharply-defined white lines. The rapid progress of the case to blindness and atrophy are interesting features.

Dr. Dodd, discussing this case, said that he had under his care

at the present time a case similar to that of Dr. Phillips, in which the vessels are very small, and atrophy has taken place, resulting from orbital cellulitis occurring with erysipelas five weeks ago. There was considerable inflammation of the orbit, and last week Saturday he had operated for abscess of the orbit. In less than a week of the time the erysipelas occurred complete blindness had taken place, and the vessels are almost completely obliterated. These Dr. Dodd considered rare cases.

Dr. E. V. L. Brown said he had seen this case ten days ago at Rush Medical College, when an accurate record had been made of it. At that time, instead of the almost perfect obliteration of the vessels, they presented a broad, white line, perfectly straight, and half way taken up by broken columns of blood. There is nothing of the kind at the present time, but a narrow, hair-like column, like the mercury in the thermometer.

THROMBOSIS OF THE CENTRAL RETINAL VEIN.

Dr. E. K. Findlay (by invitation) showed this case, in a boy of 9 years, who came to the clinic first in July last, complaining of trouble in the right eye. In November he complained of dimness of vision in the left eye. Examination showed no ciliary or conjunctival congestion, but the ophthalmoscope revealed tortuous vessels, and thrombosis was diagnosed. This has gone on to almost total blindness, with reduction of vessels to cicatricial bands, atrophy of the optic nerve and new vessel formation about the disc. There is no constitutional trouble, and the health has been good; previously he had diphtheria and measles, without involvement of the eye, and no immediate cause for the thrombotic condition could be discovered. Dr. Findlay had been unable to find another case similar, considering the age of the patient.

Dr. William E. Gamble said he considered this a very important case, having observed it throughout its course.

GLIOMA RETINÆ.

Dr. Nils Remmen presented a case of probable glioma retinae involving both eyes, in a boy of 10 months. At the fourth month the mother had noticed what she called a white spot in the right eye, which gradually became more conspicuous. Two months later the same condition was observed in the left eye. General health and family history both good. Mother states that the child seems to notice nothing except a very bright light; presses the closed hands against the eye much of the time, but shows no other signs of distress. The pupils are dilated, and react slowly to light. The vitreous of each eye is replaced by a mass looking like a fine, bright yel-

lowish spongy, sparsely penetrated by blood vessels. The anterior chamber, particularly in the right eye, is shallow. The irides are somewhat congested and somewhat discolored. Tension is plus. Catseye reflection quite clear in either eye. Dr. Remmen, considering all the circumstances and the age of the patient, diagnosed glioma retinae, and advised immediate enucleation.

In discussion, Dr. Casey A. Wood called attention to the rarity of this form of tumor, known as a cryptosarcoma, there being not more than five or six cases like it on record.

Dr. H. V. Würdemann gave a dark lantern exhibition, showing 150 photographs of tumors of the orbit.

Dr. H. W. Woodruff read a paper, (a), "Bilateral Discoloration of the Crystalline Lens into the Anterior Chamber"; (b), "Sympathetic Ophthalmia."

Discussing this paper, Dr. E. V. L. Brown said the anatomic findings were in keeping with some 72 cases reported from the Schirmer Laboratory, every one of which, including those with penetrating wound, following cataract operation, and cases such as reported by the essayist, show a plastic cyclitis of both primary and secondary eye.

Dr. Young said he thought the point deserving most attention was the question of removing the injured eye while the sympathizing eye is in a state of acute inflammation. His personal experience had led him to believe that it was best to await a period of quiescence before enucleating.

A CASE OF TUBERCULAR IRITIS TREATED BY INJECTION OF AIR INTO THE ANTERIOR CHAMBER.

Dr. Clarence W. Heath read this paper.

Dr. W. H. Wilder reported a case of methyl alcohol amblyopia.

FRANK A. PHILLIPS, Secretary.

BERLIN OPHTHALMOLOGICAL SOCIETY.

Meeting March 17, 1903.

Professor von Michel, Chairman, presiding.

LEVINSOHN reported on experiments he had made on cats to find the pupillary centers of Hemmung, which Bach and Meyer had spoken of at the last meeting in Heidelberg. The above-named authors had made incisions to different parts and sides of the floor of the fourth ventricle. Levinsohn experimented on about twenty animals (mainly rabbits), avoiding the errors of Bach and Meyer; he made a preparatory tracheotomy, and tested the pupillary reac-

tion with magnesium light. Levinsohn obtained different results as regards to the reaction, and denied the existence of these centers.

WESSELY: On artificial detachment of the retina (with demonstration of animals.) Bearing on the different theories, Wessely remarks that the oldest one, the exudation theory, seems to belong to the past. Leber's theory of shrinking of the vitreous could only be sustained for certain cases, whereas Raehlmann's diffusion theory (1878 and 1894) is utterly wrong, since it has been proved that (Eiweisskörper) have no osmotic power whatever. The experiments of Wessely seem to show that the first theory of transudation is not improbable. Ten years ago Scheffels had produced detachment in rabbits by cauterizing with the thermocauter and nitrate of silver, but the detachments were always too small, the burnt part being too severe (third degree). Wessely used hot steam of 99 C., and applied it one second, thereby causing burns of the second degree (Blasen, blisters). The apparatus he used was simply a bottle of cooking water, with a rubber hose attached; opposite a small metal case (Kapsel), which was applied, there was a wooden handle. Instead of rabbits he took cats, made a canthoplasty, rotated the eye inwardly and avoided the blood vessels as much as possible. Immediately after the sclera was burnt at the posterior pole, the fundus was reddened. Four or five hours afterward there was a detachment exactly like the one seen in patients. The separation increased and reached its largest extent after a day or two. In a week's time it vanished and was healed. Subconjunctival injections of salt water had no susceptible influence. In a few cases the detachment spread below. Wessely was sure that the vitreous was uninjured and the retina not torn. In a few cases where it could not be prevented he was able to recognize it with the ophthalmoscope and detachment then did not take place at all. Microscopic sections showed the choroid hyperemic and the retina more or less altered. Tension remained the same as before. A manometer is in the course of construction so that Wessely hopes to test the tension more minutely than hitherto. Wessely comes to the conclusion that exudation from the choroid may, after all, be the only cause of idiopathic detachment of the retina.

Discussion.—Greiff also experimented like Scheffels ten years ago, but was detained to study the matter up. As to the therapeutics, he nevertheless does not altogether renounce the value of cauterizing in cases of detachment, since he still believes that after the detachment artificially increased adhesion might follow the inflammation. Wessely replied that such a therapeutic effect was dependent on the fact that the detachment caused by the nasal

cauterizing was only small; still he is inclined to believe that the function of the retina must be disturbed by the burning.

DR. E. H. OPPENHEIMER, Berlin.

Meeting May 19, 1904.

Professor von Michel, President, in the chair.

DR. POLLACK showed a case of sarcoma of the frontal sinus which Professor Silex had removed. The symptoms had been progressive exophthalmus, sensitiveness of the bone and a shadow seen by illumination of the cavity. The tumor was of walnut size and filled up with calcium carbonate. The tumor was almost completely calcified.

DR. HAMBURGER: The anatomic and physiologic foundations of the theory of Stilling on the source of myopia. This theory considers myopia dependent upon the orbital index. Stilling says that the lower the orbit the lower lies the pulley of the obliquus superior, consequently the pressure caused by its tendon on the eyeball is greater, causing thereby a furrow (*Schnürfurche*). Hamburger remarks that statistics do not prove anything, since accurate measuring of the orbit is impossible, even if only a certain class of patients are taken into consideration, as Stilling recently stipulated. The furrow can only be seen in the cadaverous eyeball; also never by ophthalmoscopy. Stilling committed four errors in experimenting: He neglected the normal tension of the eyeball (25 mm. of mercury), which sinks rapidly after death: he simply pulled the muscle with forceps and partly destroyed Tenon's capsule; lastly, he neglected measuring the pressure of the muscle accurately. Hamburger avoided these fundamental mistakes by maintaining a constant normal tension, by attaching certain weights to muscles, by gaining access to them from behind, thus not injuring the capsule, and by using a simple water manometer for ascertaining the increase of tension. He found that he only made two experiments on cadaverous eyes. The increase of tension caused by the obliquus superior was a good deal smaller than that of the rectus superior and even of the rectus exterior. With the theory of Stilling falls, according to Hamburger, also the importance of the race as to myopia development—to my opinion a broad statement—which he considers a gain for the hygiene of the eye.

Discussion.—Professor Greeff says the experiments convince him altogether. He believes that radical tendency to myopia is somewhat due to lack of outdoor exercises, a mode of education formerly frequent in Germany more than in England or France;

hence a certain lack of rigidity of the sclera. Dr. Czellitzer criticizes the experiments, inasmuch as the direction of the weights did not agree with the muscle-action in life and the muscles are not alike as to thickness. Professor von Michel remarks that the general opinion was that Stilling had made his experiments on eyes that were not in a collapsed condition; of course, that is a grand mistake of his. Dr. Hamburger states that he did apply the weights in the direction of the muscle action, but admits that the error caused by the fact that the muscles are not of the same strength could not be prevented. This small mistake he considers of no great value compared with those made by Stilling.

DR. F. SCHOELER: Preliminary note on the therapeutic use of tuberculin. After a full review of the literature on this subject, Schoeler reports on 48 cases which he had treated in the clinic of Professor Schoeler with tuberculin—0.10 mg. was injected every three days and gradually increased to 1 mg.—in one case up to 25 mg.—but very slowly, just so that only a small reaction (fever) was noticeable. The success in cases of scleritis, interstitial keratitis, serous iritis and central choroiditis was often very good, so that Schoeler advises to make use of this remedy, especially when inunction cure and the like is prevented by general debility of the patients.

DR. MÜNCH: On the muscular nature of the pigmented cells of the uvea. In a previous publication, as assistant in Geneva, Münch had discovered spirals in the nucleus of all unstripped muscles. In the laboratory of Professor von Michel he examined cells of the uvea and found similar stripes, but in the protoplasm. Besides this there are a number of other reasons which speak in behalf of the muscular nature of these elements, and only a few against it. The uvea comprises a muscular system, still showing a certain power of contraction, which Münch supposes to be vasomotoric. This would be of importance, especially for the iris.

DR. E. H. OPPENHEIMER, Berlin.

Reviews.

The Bacteriology of the Conjunctivitis of Measles. By Dr. Ernst Schottelius of Freiburg (*Klinische Monatsblätter* June, 1904). The author gives the results of his researches into the bacteriology of the conjunctivitis, which occurs as a complication of measles.

In 1901 Guarre and Picchi examined bacteriologically the secretions from the conjunctiva and bronchi of patients ill with measles, and were able to demonstrate a slender bacillus similar to the influenza bacillus of Pfeiffer.

Morax also has lately found the same bacillus in a case of "Conjunctivite Superposée," a conjunctivitis which occurs during the later stages of measles. Morax is, however, not certain whether the conjunctivitis is caused by the germs themselves or their toxins, and he leaves the question open. M. Neisser also found the influenza bacillus in the conjunctival secretions in measles and lays great stress upon the favorable influence of colonies of bacillus xerosis present upon the growth of the influenza bacillus.

The cases examined by Schottelius occurred during a severe epidemic of measles in Freiburg in 1903-04.

In the secretions were found the staphylococcus aureus and albus, and also a streptococcus which was seen especially in the most severe cases. This streptococcus would not grow on gelatin, but grew readily on agar and blood serum.

The colonies were in form of very small, transparent gray drops, looking somewhat like fresh cultures of influenza bacilli. The colonies were not perceptibly larger, even after several weeks in an incubator. Some of the colonies proved to be made up of xerosis bacilli. Gram stain was positive, but the other anilin stains were taken with great difficulty. The best specimens for examination were obtained by staining for three to five minutes in warm fuchsin solution.

In the older cultures were seen unformed, swollen, involution forms and long and short chains of cocci.

In young agar cultures, however, were great numbers of cocci in chains of four to seven. These fresh cocci were much thicker than their neighbors', and were biscuit-shaped, and had the appearance of diplostreptococci. The hanging-drop examination, however, showed that the rapidly growing cocci soon changes from this diplostreptococci form to the usual chain formation.

The experiments upon animals were negative, so that Schottelius does not feel justified in claiming a new species of streptococci, but considers them to be a variety due to the mixed infection.

In 40 cases of measles the staphylococcus aureus was present, in 60 per cent., while this new streptococcus was found in only 14 per cent. This proportion was greatly changed, however, in the results of 40 postmortem examinations. Here the streptococcus was present in 50 per cent., showing an apparent relation between its presence and the more severe form of the disease.

The conclusion drawn is that these germs have a direct effect in causing the conjunctivitis and possibly also the infection measles itself.

F. E. BRAWLEY.

DARING FEATS BY THE BLIND.—A most impressive demonstration of what the blind can be trained to do with ease and comfort was given at the annual gymnasium exercises of the Pennsylvania School for the Blind held at Overbrook on June 10. Before a large audience, and to the accompaniment of inspiring music, the pupils performed all kinds of difficult gymnastic feats, entering into the different contests with a spirit of abandonment that made the spectators forget that they were witnessing an exhibition by blind performers. And, most singular to relate, their blind companions, who witnessed the performance in their mind's eye, enjoyed it just as much as the more fortunate spectators. Although the girls acquitted themselves creditably in picturesque marches, dances and wand exercises, the boys carried off the honors on account of their daring. Two boys gave a remarkable exhibition of fancy roller skating. Six boys performed remarkable feats on the whipple ladder, and a dozen youngsters entertained in wrestling bouts. Blindness is, indeed, the most dreadful of all afflictions, and yet the happy pupils on that occasion seemed to be delightfully unconscious of their deplorable deficiency.—*Keystone*.

SOCIETY OF HUNGARIAN OPHTHALMOLOGISTS. In Budapest, on the 22d of May, the Hungarian Ophthalmologists formed an association on similar lines to the "Heidelberger Ophthalmologische Gesellschaft" and the "Société française d'ophtalmologie." Thirty ophthalmologists took part in the discussion. The committee appointed to prepare for the next congress consists of Dr. L. von Blaskovics, Prof. I. Csapodi, Prof. W. Goldzieher, Prof. E. von Grósz, Prof. W. Schüle, all of Budapest; and Prof. K. Hoór-Kolozsvár-Klausenberg, Dr. L. Imre-Hódmezővásárhely, Dr. Z. Somogyi-Debrecen and Prof. A. von Sgily.

Notes and News.

DR. J. D. TIRCOMB of Duluth, Minn., died recently.

DR. W. KRAUS is practicing ophthalmology at Marbury.

DR. AND MRS. HOTZ will leave for Europe June 20, and will return about October 20.

DR. W. G. M. ROGERS has been appointed lecturer in ophthalmology at McGill University.

DR. E. DONALDSON, surgeon to the Londonderry Eye and Ear Hospital, died April 7, aged 49 years.

DR. ARNOLD H. KNAPP has been appointed clinical professor of ophthalmology at the Columbia University.

DR. H. F. HANSELL has been elected professor of ophthalmology at the Jefferson Medical College, from the clinical chair.

DR. O. A. GRIFFIN of Ann Arbor, Mich., sails from New York on June 15 for Europe, where he will visit the eye and ear clinics.

PROFESSOR DOBROWOLSKI of St. Petersburg died April 10. He was 68 years of age. He studied under Arlt, Donders and Helmholtz.

AN opticians' league has recently been formed in the State of New York. It has for its aim the advancement of the interests of the craft.

MR. JOHN TWEEDY has been appointed emeritus professor of Ophthalmic Medicine and Surgery by the Senate of University College, London.

DR. LOUISA P. TINGLEY has been appointed ophthalmic surgeon to the Pope Dispensary of the New England Hospital for Women and Children, Boston, Mass.

DR. J. S. LICHTENBERG has been elected one of the professors of ophthalmology at the Medico-Chirurgical College, Kansas City. Dr. Lichtenberg is in Europe for the summer.

WE notice, with deep regret, the death of Prof. Carlos de Vincentis, director of the Ophthalmic Clinic at Naples. He was among the best known and most brilliant of the Italian ophthalmologists.

DR. H. H. FRUDENFELD of Madison, S. D., sails from New York the 14th of June on the *Kronprinz Wilhelm* for post-graduate work in London, Berlin, and possibly Vienna. Dr. E. H. Grove of Chicago will take Dr. Frudenberg's place. Mrs. F. will accompany the doctor.

AT the University of Berlin, Dr. Herzog, hitherto laboratory assistant in the clinic of Professor von Michel, and Dr. Levinsohn, oculist in Berlin, have become "Privatdocenten." Their first lectures were entitled, "On the Relation of the Bacillus of Koch-Weeks, and the Trachoma and Influenza Bacilli," and "The Signification of Pupillary Changes," respectively.

MONUMENT TO PANAS.—The eye clinic at the Hotel Dieu at Paris was organized by the efforts of Panas, and he was the first incumbent of the chair of ophthalmology, founded also in response to his pleading. A monument has been erected to his memory in the hall of the clinic where for twenty years he had divided his time between his patients and his students. The ceremonies were impressive as the memorial was unveiled to this son of Greece, who contributed to the fame of his adopted country.—*Journal of the American Medical Association*.

TENTH INTERNATIONAL OPHTHALMOLOGICAL CONGRESS.—The Committee of Arrangements of the Tenth International Congress of Ophthalmology remind the members of the congress of a convenient system of tickets issued by Swiss railways, entitling the purchaser to travel where he pleases over their rail and steamship lines during fifteen to thirty days. These cost 70 to 100 francs for the first class, and 50 to 75 francs second class, respectively; the photograph of the purchaser must be attached to the ticket. They are also issued in Paris and in London (Victoria and London Bridge), with corresponding increase in the length of time during which they are valid.

DR. CHARLES A. OLIVER of Philadelphia, Pa., has been chosen by the British Medical Association as its official guest from the United States for its seventy-second annual meeting, which is to take place in Oxford, England, in July. With him are associated Professor Hirschberg of Berlin, representing Germany, and Dr. Javal of Paris, representing France. During his stay Dr. Oliver will reside at Keble College as the personal guest of Mr. Robert Walter Doyne, the president of the ophthalmologic section of the association and lecturer on ophthalmology at Oxford University.—*New York and Philadelphia Medical Journal*.

DR. A. MAITLAND RAMSAY of Glasgow, Scotland, was the guest of the Ophthalmic Section, American Medical Association, during its recent session at Atlantic City. His address on "The Importance of General Therapeutics in the Management of Ocular Affections" was one of the events of the session, and was listened to with marked attention. We commend this paper to those of our readers who did not have the privilege of listening to the distinguished visitor. Dr. Ramsay also visited St. Louis, Boston, Philadelphia, Chicago and New York, where he was entertained by prominent members of the Ophthalmic Section.

CORRELATION OF BLINDNESS AND USUAL SYMPTOMS OF LOCOMOTOR ATAXIA.—It is generally thought that when a patient suffering from locomotor ataxia becomes blind, the other symptoms of disease such as shooting pains or the ataxia do not appear or have no tendency to increase. The well-known nerve specialist, Dr. Pierre Marie, does not admit this, and has recently demonstrated this by statistics based on 45 cases of blindness in locomotor ataxia. In 32 cases where the patient was already blind, the pains came on in 16 cases after an interval of only a few months in some cases. In others the pains came on nine, ten, or twelve years before the blindness. When the blindness came on rather late after the appearance of the shooting pains, the pains disappeared in only three cases out of 16, and then only after a long period of time, such as is seen in most cases. In six amaurotic patients the pains were still as acute after eight, eleven, twelve, seventeen and twenty years. As for the ataxic symptoms, they have not seemed influenced in any manner, appearing before or after the eye trouble. Dr. Marie concludes that it is impossible to consider that the blindness can have any effect on the other symptoms of locomotor ataxia.—*Journal of the American Medical Association*.

METHYL ALCOHOL POISONING.—The following resolution was presented by the Section of Ophthalmology, and adopted by the House of Delegates of the American Medical Association at the recent meeting in Atlantic City:

WHEREAS, The employment as beverages of wood spirit or methyl alcohol and its various preparations is known to have been responsible for numerous deaths and many cases of blindness in this country during the past few years; and

WHEREAS, Even the breathing of confined air charged with the fumes of this form of alcohol has been known to produce blindness, it is

Resolved, That the House of Delegates of the American Medical Association, recognizing the dangerous character of wood alcohol and liquors containing it, believes that it should be placed on the list of poisons. It accordingly urges the proper federal and state authorities to take the necessary steps to protect life and eyesight from its pernicious influences.

WE have seen the title-page of *Ophthalmology*. As already announced in the RECORD, this is to be a new quarterly journal, owned, edited and published in the interests of the medical profession, the initial number of which will appear Oct. 1, 1904. Yearly subscription, \$5.00.

As its name indicates, it will be an ophthalmic periodical of about 250 pages, devoting about one-third of each issue to original essays, the balance to abstracts of original articles appearing in domestic and foreign literature; also complete book reviews. The following well-known ophthalmologists and editors are in charge of the various departments:

H. V. Würdemann, M.D., Managing Editor and Publisher; Nelson M. Black, M.D., Assistant Editor. *Chiefs of Departments*.—Charles H. May, M.D., New York City, American and English Literature; Casey A. Wood, M.D., Chicago, Italian Literature; Chas. A. Oliver, M.D., Philadelphia, Blencowe E. Fryer, M.D., Kansas City, French Literature; Albert B. Hale, M.D., Chicago, Spanish and Portuguese Literature; Edmond E. Blaauw, M.D., Buffalo, Dutch Literature; Chas. Zimmermann, M.D., Milwaukee, Wm. Zentmayer, Philadelphia, German Literature; J. Güttmann, M.D., New York City, Hungarian and Austrian Literature; Frank Allport, M.D., Chicago, British Colonial Literature; Prof. Dr. M. Wicherkiewicz, Cracow, Austria, Polish, Russian and Scandinavian Literature; Mitsiyasu Inouye, M.D., Tokio, Japan, Japanese and Asiatic Literature; Claud Worth, F.R.C.S., London, England, English Literature.

The printing will be done by the American Medical Association Press, and every endeavor will be made to give the ophthalmologists a first-class, fully illustrated and up-to-date journal. Appreciation of this effort in the form of an early subscription is the kind of stimulus that will make the undertaking successful.

AS EVIDENCE of the difficulties that confronts the student of ophthalmology when the great day of the final examination arrives and he must decide what section of his note-book will most effectually appease the "professor god," we present the following answers of a certain student to two questions, being his offerings upon the sacrificial altar of a certain university—after he had laboriously attempted to absorb the teachings of the instructors in diseases of the eye during four long years of mental struggle: "(1) How do you differentiate between strabismus and paralysis of an eye muscle? *Answer.*—(a) In paralysis there is a decrease on the side of the paralyzed muscles and an increase on the other side; these do not affect the adjacent structures. (b) In stabismus the muscles are only affected on one side and there is an increase; then the objects look very blurred in strabismus, but not so in the case of paralysis. *Treatment.*—Put the patient on a light diet, put on green goggles, give the muscles a slight massage and wash with a 4 per cent. solution of boracic acid. Don't let the patient have too much light, as it is too much strain on the muscles involved; keep the patient as quiet as possible. (2) What causes ophthalmia neonatorum and purulent ophthalmia of adults? Give means for their prevention and methods of treatment. *Answer.*—Ophthalmia in adults is caused by the structures of the eye giving way and not furnishing nourishment to them, and also to people constantly using the eyes where light penetrates the eye in full force. *Treatment.*—You would put glasses on the patient and not let them use the eyes, and keep them in a dark place; give the eyes a washing with some antiseptic such as boric acid or bichlorid 1 to 10,000, and see that the patient is on the right diet."

THE AMERICAN ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY.—Ninth annual meeting, Denver, Colo., August 24, 25, 26, 1904. Preliminary announcement of the Council nominations for fellowship as follows: Dr. Alvin A. Hubbell, Buffalo, N. Y.; thesis, "Samuel Sharp: the First Surgeon to Make the Corneal Incision for Cataract Extraction with a Knife." Dr. Emil Mayer, New York; thesis, "Diseases of the Maxillary Antrum: Their Diagnosis and Treatment." Dr. B. Alex. Randall, Philadelphia, Pa.;

thesis, "The Real Principle of Test-Type Construction." Dr. Charles W. Richardson, Washington D. C.; thesis, "The Collodion Dressing for Intra-Nasal Surgery." Dr. George E. de Schweinitz, Philadelphia, Pa.; thesis, "Metallic Foreign Bodies Within the Eyeball and Their Removal; Being a Clinical Account of Twenty-six Operations of That Character." Dr. John E. Weeks, New York; thesis, "Remarks Concerning Some Part of the Technic of Mules' Operation, the Handling of Thiersch Grafts and the Advancement of the Recti Muscles." *President's Address*, Dr. Edward Jackson, Denver, Colo., "Education for Ophthalmic Practice." *Ophthalmic Papers*: Dr. A. Alt, St. Louis, Mo., lantern demonstration on "Glioma and the Question of Rosettes;" Dr. J. A. L. Bradfield, La Crosse, Wis., "Further Experience and Treatment of Keratoconus;" Dr. J. C. Buckwalter, St. Louis, Mo., "Removal from the Lachrymal Duct, a Style Which Had Been Buried Seven Years; Almost Fatal Hemorrhage;" Dr. A. E. Bulson, Jr., Ft. Wayne, Ind., "The Toxic Amblyopias, with Special Reference to Those Produced by Tobacco and Coffee;" Dr. J. W. Bullard, Pawnee City, Neb., "The Use of Pure Nitric Acid in the Treatment of Diseases of the Eye;" Dr. J. Elliott Colburn, Chicago, Ill., "Cases of Retinitis Pigmentosa;" Dr. B. E. Fryer, Kansas City, Mo., "Remarks on the Need for Thorough Aseptic and Antiseptic Work Prior To, During and After Cutting Operations on the Eyeball;" Dr. H. Gifford, Omaha, Neb., "The Safest Operation for Senile Cataract;" Dr. D. W. Greene, Dayton, O., "Some of the Accidents and Complications Met with in the Extraction of Cataract;" Dr. O. A. Griffin, Ann Arbor, Mich., "Changes in Refraction;" Dr. Thomas C. Hood, Indianapolis, Ind., "Notes on the Use of Dionin;" Dr. S. Kirkpatrick, Selma, Ala., "A Case of "Unilateral Nystagmus, with Remarks on the Probable Cause;" Dr. T. W. Moore, Huntington, W. Va., "Some Unique Cases of Amblyopia;" Dr. T. B. Schneideman, Philadelphia, Pa., "Central Superficial Choroiditis;" Dr. Eugene Smith, Detroit, Mich., "Removal of Anterior Capsule and the Hypodermatic Use of Morphia in Simple Extraction;" Dr. G. F. Suker, Chicago, Ill., "A Criticism on the Use and Abuse of Lachrymal Probes;" Dr. Casey A. Wood, Chicago, Ill., "How Shall We Educate Our Blind Children?"

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

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Original Articles.

SOME REMARKS ABOUT GLAUCOMA.

SUGGESTED BY DR. ABADIE'S ARTICLE IN THE *ANNALES D'OCCULISTIQUE*
FOR APRIL, 1904.

JOSEPH A. WHITE, A.M., M.D.

Professor of Ophthalmology and Associate Professor of Otology and Laryngology
in the University College of Medicine, Richmond, Va.; Senior Surgeon
to the Richmond Eye, Ear, Throat and Nose Infirmary; Member
of the American Ophthalmological Society, of the L. R.
and O. Society, the A. M. A., Etc. Etc.

RICHMOND, VA.

In the *Annales D'Oculistique* for April, 1904, there appeared an article by Dr. Charles Abadie in which he claims to call attention to some unrecognized and overlooked forms of glaucoma. As he says, "Acute and subacute glaucoma, known also as inflammatory, are well known and readily recognized," their objective and subjective symptoms being so marked that the diagnosis, prognosis and treatment are plain, and that anyone claiming to be an ophthalmologist would advise an iridectomy at once. But he states that there are other forms of glaucoma, in which the commencement is so very insidious, the symptoms in the occasional attacks so lacking in *prominent features*, that both doctor and patient are apt to be deceived, especially as in the interval the eye is in an apparently normal condition; but the prognosis of these cases is also serious, and they eventually end, as in more pronounced cases of glaucoma, sooner or later in blindness, unless they receive proper attention in the early stages. To quote:

"These forms of glaucoma, although especially interesting to study, are not much referred to in classic literature. They are passed over in a few words, without any detail in regard to their symptoms, course, prognosis or treatment. Their principal characteristic is that they present themselves under the form of occasional attacks, separated by intervals of complete remission. These

attacks themselves are of different kinds. Sometimes it is *simple pain* in the eye and in the neighboring region. These pains are sometimes violent, and are often considered by the patient and doctor as trigeminal neuralgia. This error is easy enough to make, as during these painful attacks the eye itself sometimes escapes entirely, but they are distinguished from neuralgia of the ophthalmic nerve by absence of tenderness on pressure over the exit of the frontal branches, near the pulley of the superior oblique. Moreover, their sudden appearance and disappearance without any appreciable cause, and without any regularity, which is never the case in neuralgia, which usually revolves in a fixed cycle; their short duration, sometimes only one or two hours, and the insignificant action of medical agents, such as sulphate of quinin, which is so useful in true neuralgia, are all important points in the differential diagnosis. Finally, their mode of evolution solves all doubts, as ordinarily these painful attacks become more frequent and more intense, and eventually are transformed into true glaucomatous attacks which can no longer leave any uncertainty as to their character. From this time on the ocular symptoms become more pronounced, the intraocular tension becomes permanent, the pupil is dilated, the cornea loses its brilliancy, the field of vision contracts on the nasal side, and the visual acuity becomes weakened. Thus it happens that the glaucoma, remaining a long time, sometimes several years, in what may be called a prodromal stage, has entered into the chronic form.

"At other times this prodromal period consists simply in the appearance of *colored circles* around lights. It is naturally in the evening that this is observed. At first they do not appear except at rare intervals, but soon they increase in frequency, but without showing the least regularity in their appearance.

"The most careful observation fails in discovering any cause for them. Except for the colored circles around lights, no other objective or subjective phenomenon presents itself about the eyes.

"The visual acuity remains intact, and the exterior appearance is normal. But whatever is done, whatever the alimentary treatment used or the internal remedies prescribed, the colored circles still appear irregularly, and do not disappear except when pilocarpin is instilled.

"As may be seen by the examples given, these glaucomatous attacks sometimes remain a number of years in the prodromal stage, but they end by becoming chronic glaucoma, with all the dreadful consequences which it brings with it.

"Finally, glaucomatous attacks present themselves under the form of *misty clouds, or veils*, as the patients say, during which the vision

remains more or less cloudy. This visual trouble lasts for an hour or two. It comes on without any appreciable cause, and as irregularly as the painful attacks, and as the colored circles, but disappears spontaneously as it came and leaves the sight intact.

"Here again treatment, medicine, all fail, except instillation of pilocarpin, which makes them disappear, and thus permits of the certain determination of their glaucomatous nature. Here again the disease terminates eventually in chronic glaucoma.

"These three prodromal forms, pain, colored circles and mists, are either separate or appear together. That is to say, the painful attacks sometimes occur with the colored circles or the mists, and this is what constitutes the mixed forms.

"Ordinarily these mixed forms progress more rapidly and end sooner in chronic glaucoma.

"The principal object of this paper is to prove that these various forms of glaucoma, which are frequent, often escape the notice of the ophthalmologist, who does not realize their gravity, and does not always treat them as they should be treated. Usually they are contented with myotics, and prescribe instillations of eserine and pilocarpin, to be used several times daily. Thus they obtain at least a momentary disappearance of the attacks. The patients and doctors seem satisfied, but they reserve grave consequences for the future.

"In fact, at the end of two, three or four years, sometimes more, the disease changes its character. Either an acute or subacute attack supervenes, or the intraocular tension, until then normal during the interval between the attacks, continues elevated in spite of the regular use of myotics; the field of vision commences to contract, first on the nasal side and then all around. Then the central vision weakens in its turn, the nerve becomes excavated, and if the functional condition of the eye be observed at intervals it will be recognized that it is becoming worse and worse and threatens to end in the total loss of vision."

Dr. Abadie quotes quite a number of cases, both those that were operated on and those that declined the operation, to prove his point, and I think the article is worthy of reproduction in one of our own journals, because I consider anything that will force us to recognize glaucoma *early enough to actually abort its manifestation* is valuable. For I must confess that I for one need forcing to see glaucoma. I never want to see it, and I think that very few of us do. When we find phenomena about the eye that might lead to the diagnosis of glaucoma, I think many of us are apt to look for some other cause for it, especially if vision, field and tension are normal,

as all of us dread the advent of this disease. Speaking for myself, I certainly do, and I wish to state here my reasons for it. In acute glaucoma an immediate iridectomy is a practical guarantee of relief. In subacute glaucoma, in the very earliest stages, before any damage to vision has been done or before the field is much contracted, or before much excavation of the disc has taken place, we might look for an iridectomy to give permanent relief. But in chronic inflammatory glaucoma where, as is the case with most of the patients who come to see us, the vision is already defective, the field already contracted and the disc already appreciably excavated, an iridectomy not only is no guarantee of relief or of saving what vision is left, but in my experience, in spite of it, the patients go on from bad to worse and eventually become blind, although in nearly every case the acute exacerbations, and especially the painful phenomena, are prevented. This is the history of nearly every case that I have been able to watch. In all of them the disease is apparently arrested for some time. But in not one single instance have they retained this vision in the cases I have been able to keep under observation for years afterward. Even in cases where a vigorous use of strychnin and phosphorus has been followed by actual improvement of the visual acuity, sooner or later the excavated nerve takes on an atrophic stage and vision is gradually blotted out, and that, too, without any further manifestations of glaucomatous symptoms. Now, if these also had disappeared from my observation as the majority of them did, I should have concluded that I had cured them all by my iridectomy. The relief from attacks of pain is a great boon, but the retention of vision is the more important consideration.

That an iridectomy is regarded as unsatisfactory in chronic inflammatory glaucoma is evidenced by the fact that the whole ophthalmologic world is looking for a more satisfactory method of arresting or curing this trouble. Sclerotomy, or puncture of the sclera, Hancock's operation, or the division of the ciliary muscle, and the removal of the superior cervical ganglion of the sympathetic nerve, have been suggested in place of it, but nothing has yet proved perfectly satisfactory.

Again, in regard to an iridectomy in chronic inflammatory glaucoma where the sight has become at all defective, *the vision after the operation* is never as good as it was before. There is always an appreciable loss of vision resulting from it in my experience. Now, this remark does not apply to cases where the vision is practically perfect, the field not much contracted and the disc only slightly excavated.

Where, however, an iridectomy is done in this *prodromal stage*, with occasional attacks of hypertension, pain, rainbow vision or misty appearances, although in my own personal experience these have been very few, it seemingly arrests the disease absolutely, and is not followed by any deterioration of vision from the ante-operative condition. In fact, iridectomy is abortive, not curative, in chronic inflammatory glaucoma.

If, then, we can persuade patients to submit to this operation as soon as they have any one of these marked symptoms of misty vision, rainbow vision or recurring attacks of pain in and about the eye, with slight hypertension, before the field becomes contracted or the nerve excavated, we would probably do away with chronic inflammatory glaucoma. Here, however, is the difficulty. We must use very persuasive eloquence to make a patient submit to a cutting operation on an apparently healthy eye with normal vision. They will submit to any medication to get rid of the seemingly slight annoyance of occasional pain, mist or colored lights, and if the use of myotics gives temporary relief they will invariably refuse an operation until the attacks are very frequent or begin to damage the vision. Even a contracting field or commencing excavation of the nerve conveys nothing to their intelligence, because, as long as central vision remains good they are not subjectively conscious of this change in the eye, and very few will consent to operation.

LIPOMA OF THE EXTERNAL RECTUS MUSCLE.

CASEY A. WOOD, M.D., D.C.L.

CHICAGO.

It matters not what tissues beneath the anterior coverings of the eyeball have been involved in the growth of fatty tumors, they are invariably referred to and described as "subconjunctival." Even LaGrange describes these growths under tumors of the eye, and not of the orbit. While, in a sense, there is nothing improper in such a description, and while it finds its analogue in the term "subdermal" lipoma, yet it often happens that the growth has formed such a connection with, or has such a definite origin from, certain tissues that this fact ought, in the opinion of the writer, to be recognized in the title of the article describing it.

Although lipomata may grow from fat deposits in any part of the body, they rarely affect any part of the ocular apparatus, not even the lids. Any form of fatty tumor within the orbit is exceedingly rare. The following case is, for that reason, worth reporting:

H. A. F., aged 5 months, was seen by me in November, 1898. He

is one of six children. The other five do not present any congenital anomaly and are not the subject of any neoplastic growth. The parents are healthy. The patient is a sturdy, well-nourished boy, without apparent defect except the ocular deformity. Shortly after the child's birth a "whitish growth" was discovered near the eyeball and inside the lids of the left eye. The mother thinks the tumor is growing. In any event, it seems more prominent at times, especially when the child cries. The eye itself does not become red and there has been no discharge from the lids. There is no appearance of squint.

The outer aspect of the left globe is occupied by a rounded, pinkish-yellow mass, apparently lying on the external rectus and covered with normal conjunctiva. So far as can be determined, it is attached to the surrounding structures, although the bulbar conjunctiva can be readily moved about it. It can be pushed into the orbit, and moves back and forth with the excursions of the left eye. It does not project sufficiently to affect the contour of the closed eyelids. The excursions of the globe in all directions are not noticeably limited. The ophthalmoscope does not reveal any intraocular lesion.

I removed the subconjunctival growth under a general anesthetic, Nov. 7, 1898. The tumor (apparently fatty) seemed to be encapsulated, and I had some difficulty in shelling it out and freeing it from its attachments to the external rectus muscle, Tenon's capsule and even to the conjunctiva above.

The wound healed kindly, and in a month there was very little trace of the tumor. Several months afterward I again saw the child. He had had an acute infection of the conjunctiva "following the grip," but there was no recurrence of the growth.

The tumor was submitted to and a histologic examination made by Dr. E. J. Brougham, pathologist to the Passavant Memorial Hospital, to whom I am much indebted for the following report: The shape of the tissue mass was an oblong, about 2 mm. thick, 4 cm. long and 2 cm. wide. The upper surface was somewhat lobulated, rough and irregular, but its inferior aspect was smooth. Histologically, it is a lipoma with a few striped muscular fibers attached to its under surface.

Both the clinical and pathologic description just given differ somewhat from the usual histories of such cases. The reason why these are not uniform in, say, such treatises as LaGrange, is that this neoplasm does not always arise from the same fat deposit. Probably the majority grow from the subconjunctival fatty tissue, while others originate in the deeper deposits; while a few, of which

I believe the present case to be an example, spring from that adipose tissue that is almost always seen within the tendon-sheath of every voluntary muscle. Arising within Tenon's capsule from the fat corpuscles of the central tendon, it gradually spread along the outer aspect of the external rectus muscle, not only toward the apex of the orbit, but forward until it reached and finally produced bulging of the conjunctival surface. Inasmuch as its relations to the mesotendon were so intimate it was not easy to separate the tumor from the body of the muscle; hence the presence of striped fibers on one surface of the specimen. The measurements of the tumor, as given by Dr. Brougham, were made when the tissues were spread out and do not, of course, give a proper idea of the shape and bulk of the growth *in situ*. So far as could be estimated at the time of the operation, it formed an irregular lobulated mass about 30x10x5 mm. The manipulation of the tumor during removal, and the necessary employment of scissors to separate it from the underlying muscle, will account for its post-operative condition.

I have not been able to find an account of an ocular lipoma arising from muscular adipose tissue. Similar conditions elsewhere are recorded, although Ziegler (*Lehrbuch der speciellen pathologischen Anatomie*, 1890) classifies muscular lipomata among the rarest of the innocent tumors. Geo. H. Weaver (*Journal Am. Med. Ass'n*, Dec. 12, 1896) describes a lipoma developed in the upper end of the semitendinosus muscle. Its surface was smooth and even, and covered everywhere by the fibers of the tendon and muscle

HYSTERIA OR DISSIMULATION?

ARTHUR C. H. FRIEDMANN, M.D.

COLORADO SPRINGS, COLO.

It would seem impossible that hysteria and dissimulation could be mistaken one for the other, and yet once in a while we meet cases where the border lines between the two are so indistinct that an error is easily made.

On September 9, 1903, G. W., a girl, 11 years old, was brought to my office by her mother, who told me that the girl's eyes had become gradually weaker during the last six months, that she complained of not being able to see the letters written on the blackboard, and that the teacher had advised her to see a specialist about it.

The patient is an intelligent child, normally developed, healthy looking, and not yet menstruated. When questioned, she answers without any emotion or hesitation, right to the point. An exam-

mation of her eyesight showed R. E. 5/20, L. E. 5/25, which neither spherical nor cylindrical glasses could improve; muscles were balanced, lids normal, refractory media clear, pupillary reaction and fundus normal. Before laying the case aside with the hopeless diagnosis, amblyopia, I tried a little device which I had seen applied by the recruiting army surgeons in Germany when trying to unmask a dissimulator. I took a + cyl. 1.0 D., ax. 180°, put it before the right eye, covering the left, and let the patient read. She read just about as much as she had done without any glasses. I then combined that lens, first with — cyl. 0.25 D., 180°, afterward with — cyl. 0.5 D., 180°, then — cyl. 0.75 D., 180°, and at last with — cyl. 1.0 D., 180°, and found that with every increase in cylinders the eyesight improved until, with the final combination of + cyl. 1.0 D., 180°, and — cyl. 1.0 D., 180°, the eyesight was = 1. The same result was obtained on the left eye, and binocular also. And now arose the question: Was this a case of dissimulation or hysteria?

In order to decide this I had the patient read several sets of test letters, which she had not seen before, at different distances and without glasses, and she read every time exactly as she had done previously. R. 5/20, L. 5/25. That excluded, of course, the possibility of dissimulation, as hardly even an old expert in that kind of deception would have been able to give so exactly corresponding answers for each eye. I will mention here that whenever during the course of the examination I tried the combination + cyl. 1 D., ax. 180°, or any other combination of + the same strength, her eyesight became invariably = 1.

It is a well known fact that these cases respond very readily to suggestive treatment. In her case I told the mother in the girl's presence that some slight eye trouble needed treatment, prescribed a 1/8 per cent. zinc solution, and suggested that with the improvement of that slight inflammation the eyesight would probably increase very much. She came back after a week, and her eyesight without any glasses was = 5/10. I then changed the zinc solution to aq. dest., to be used for two more weeks in instillations, after which period her eyesight increased to 5/4 o. u. I have not seen her since and would not be at all surprised to have her come again some day with considerably diminished, or even no sight at all, as one usually sees this kind of cases recur quite often. It seems that a tonic does well, as anemic conditions are generally found accompanying the hysterical. To tell such patients to avoid emotion is just as senseless as to tell a man without feet to walk.

In cases where the diagnosis, after exhausting all other means of

differentiation, remains dubious. I shall consider the affection hysteria, when after thorough and repeated examinations I can not see any purpose for dissimulating on the part of the patient.

2 North Cascade Ave.

THE RELATION BETWEEN PRESBYOPIA AND THE RANGE OF ACCOMMODATION: A SIMPLE AND CONVENIENT FORMULA.

E. B. EATON, M.D.

SAN FRANCISCO, CAL.

Outside the covers of text-books there is need of some practical methods of quickly and accurately determining the reading lenses for presbyopes, who often, from conditions of general environment and occupation require lenses quite different from those indicated by ocular physiology—as, for instance, their age. The empirical selection of reading and occupation glasses is often untrustworthy.

Text-book “rules” and routine methods have, it is to be regretted, many lamb-like followers.

Among the conditions modifying the regular physiologic recession of the near point may be mentioned the following:

1. Nerve fatigue (so-called neurasthenia) from defective metabolism, malnutrition, deficient sleep, excesses, etc.
2. Anisometropia.
3. Hysteria.
4. Convergence excess.
5. Convergence insufficiency.

When the patient's health is excellent and habits correct I have found Landolt's rule (See *The Refraction and Accommodation of the Eye*, p. 339) to work well—i. e., one-third of the range of accommodation (all errors of refraction being corrected) must be kept in reserve.

For instance: An emmetrope, aged 50, has 2 D. of accommodation. To read comfortably at 3 D. (13 inches) he is lacking one diopter, to which we must add $\frac{1}{3}$ of 2 D., or 0.66 D., making his reading lens + 1.66 D.

If a patient of the same age has 1.50 D. of hyperopia we, of course, add this amount to the lens just found, making the lens + 3.16 D., or practically + 3.00 D., or + 3.25 D.

To expedite this process of selection, I have worked out a simple formula. thus: Analytically it is, where p = the punctum proxi-

num., and 1 the lens to be added for presbyopia: $(3 - p) = \frac{P}{3} - 1$. That is, the difference between the reading point in diopters, 3 D., and the punctum proximum, \div the punctum proximum divided by 3 = the lens. Clearing the equation, $\frac{P}{3} - 2 = 1$. Conversely, by transposing, $\frac{P}{3} - 3 = \text{punctum proximum}$. We simply deduct from 9, twice the punctum proximum and divide by 3. This calculation takes but a few moments.

The above case of an emmetrope, aged 50, gives: $\frac{9 - 2 \times 3}{3} = 1.33$ D.

Where neurasthenia, hysteria and convergence anomalies are present the case must, of course, be treated individually, and the lenses may have to be weaker or stronger than indicated by the formula, and it is needless to state that in the great majority of cases as complete cycloplegia as is possible is the keystone to success.

In closing, I wish particularly to recommend the routine and careful use of the admirable "refraction ruler" of Dr. A. E. Prince for the estimation of the range of accommodation.

590 Sutter St.

Correspondence.

THE NEW JOURNAL OF OPHTHALMOLOGY.

To the Editors. The entire staff of the *Annals of Ophthalmology* resigned June 15, owing to unpleasant relations with the owner and publisher, who is not a physician, and who has no interest in the medical journal further than the pecuniary profit therefrom. After many and futile attempts to acquire the journal, and finding it impossible to raise the standard of printing or improve the business methods in accordance with those desired by the staff and required by their contributors and subscribers, they found it necessary to resign. A new quarterly journal—*Ophthalmology*—will appear under their direction October 1, printed by the American Medical Association press. Each number will consist of 250 pages, containing essays, abstracts and book reviews. The following is the staff:

H. V. Würdemann, Managing Editor...	Milwaukee, Wis.
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Subscription price is \$5.00 per year. All physicians interested in ophthalmology are requested to aid in making the undertaking a success by sending in their subscriptions to *Ophthalmology*, 105 Grand Ave., Milwaukee, Wis. Very truly yours,

H. V. WURDEMANN.

MR. WORTH'S OPINION OF MUSCLE TRAINING.

To the Editors.—I notice in the June number of THE OPHTHALMIC RECORD an article under the above title by Dr. David W. Wells, in which the author disagrees with certain remarks on the treatment of heterophoria contained in my book, "Squint; Its Causes, Pathology, and Treatment." I am glad to have seen Dr. Wells' friendly criticism, because it shows that, even where I thought that I had made my meaning perfectly clear, there is still room for misunderstanding.

I said that I had tried thoroughly all the most approved methods of muscle training by means of rhythmic exercises with prisms, cylinders, etc., without producing an effect on a true heterophoria. But in view of the fact that these prism exercises are used by so many distinguished ophthalmologists and personal friends in the United States, I refrained from saying, or even supposing, that they were useless. I merely gave a simple statement of my own experience of them in London.

Of course, the power of *dynamic* convergence can be easily and quickly increased by means of rhythmic exercises, so that a case of exophoria is indirectly benefited by convergence-training, though the degree of exophoria during repose of the eyes remains the same. But I have never seen a case of hyperphoria benefited either directly or indirectly by any kind of muscle training.

In commenting on the method of convergence-training which experience has led me to adopt, Dr. Wells considered unscientific because accommodation is brought into play at the same time. I submit that it would be theoretically wrong to disassociate the exercise of dynamic convergence from the effort of accommodation with which it is normally always associated; and, practically, the plan described has given excellent results—at least as good as the more elaborate methods which I have tried.

The concluding paragraph of the article appears to have been written under the impression that I advocate this procedure as a muscle exercise in cases of heterophoria. As I carefully explained, it is used only for training dynamic convergence.

I wish to take this opportunity of saying that, in discussing cyclophoria, I inadvertently omitted the name of Savage, the pioneer in this subject. The omission will be rectified in the second edition.

CLAUD WORTH.

London, England.

Reports of Societies.

AMERICAN ACADEMY OF OPHTHALMOLOGY AND OTO-LARYNGOLOGY.

Meeting at Denver, August, 1904.

EDUCATION FOR OPHTHALMIC PRACTICE.

Edward Jackson, M.D., Denver, in his address as President of the Academy of Ophthalmology and Oto-Laryngology, said that in the present day, when special training is required by a large and rapidly-increasing body of physicians in this department of medicine, the institutions that furnish medical education must meet the demands of the time. The new facts brought to light each year in the broad domain of science are beyond the power of any human mind to master in a year's study, and specialization is inevitable. Training for a certain line of work must be judged by the efficiency it confers for that particular work. While breadth of learning and collateral thought are highly desirable, and the things he would argue for, the essential is training for the special work. The special work for which the ophthalmologist is to be trained deals first with mathematical problems of refraction and ocular movements; second, particularly delicate and exact manipulations and operations; third, it takes up the problems connected with a very special anatomy, physiology, pathology, therapeutics and hygiene. From these it extends as far as the individual practitioner may choose to go into the domain of general medicine and surgery. The first step is the training of the student in painstaking accuracy in mathematical measurements, and the next the education of the hand and eye for the delicate operations of the ophthalmic surgeon. A medical course that merely *permits* a student to do this kind of work is but one remove from a course that would permit him to gain all his knowledge and skill outside its requirements. But the student's time and energy are so crowded with other things that the required training is largely impossible. The accurate eye and delicate touch must be acquired early in life. The most glaring defect of the present medical course is the lack of work in special anatomy and physiology. The hands, brain, intellect of the individual develop but once. They reach the highest efficiency when that development is continuous and intelligently directed from the start. All unrelated information is an incubus; every accomplishment that brings no added ability or broadened view is a dissipation; and

the spending of four years of medical course in loading up with useless detail of fact and the acquiring of highly specialized ability to do what will never be done is a criminal waste of vitality. Either the course will have to be reorganized to give what the specialist needs, or the specialist will cease to take it. The readjustment of the medical course can not be a matter of infinite extension; it is a matter of wise selection. Of the studies that now form the framework of the medical course, none can be wholly dispensed with, with the exception, possibly, of obstetrics; but certainly the outline of intrauterine development and some general knowledge of the condition of pregnancy and the puerperal state must be retained. The ophthalmic surgeon has a right to protest at having his memory burdened with the landmarks by which the iliac artery might be located for ligature. The anatomy of the eyeball and its appendages, the orbit and neighboring cavities, the visual tract and whatever comes in relation with it, he must know in minute detail. To this must be added such knowledge as will enable him to understand the physiology and pathology of the different organs, and the general principle of construction and support. Physiology in its general principles should be taught to all who practice ophthalmology. Nothing related to the general physiology of the nervous, muscular and vascular systems should be neglected, as they are so extensively represented in the eye. General pathology is of similar importance, but special appearances presented in distant organs not closely related to the eye may be omitted. Bacteriology touches ophthalmology as closely as any other branch of medicine, and a general acquaintance with it will do much to broaden the intellectual horizon. If there be general principles discernible in therapeutics, they are highly important to the ophthalmologist. Materia medica and pharmacy can be cut from the course. It will still remain for the conscientious teacher to exclude all that is short of what is needed to bring the subject into such compass that the average student mind will find it more than a mass of unrelated facts and contradictory assertions. In general medicine and surgery we come to the question of teaching in cognate specialties. In every department there are facts of the highest importance to the ophthalmologist, but much must be left out. The specialization advocated will furnish doctors of medicine really fitted for ophthalmic practice and bind the profession together by bands of mutual respect. It is not desirable that this education should be left for brief post-graduate courses, but institutions of the highest type should offer a formal course, fitting their graduates for ophthalmic practice.

HEMORRHAGE FROM THE LACHRYMAL DUCT FOLLOWING REMOVAL OF STYLE.

This was the title of a paper presented by Dr. J. C. Buckwalter, St. Louis, Mo., in which he described the removal of a style which had been placed in the duct on account of epiphora and allowed to remain without attention for some time by the physician in charge, the essayist not being consulted until six years had elapsed from the time of its disappearance. The anterior portion of the inferior turbinate bone was sawed through, and the isthmus of tissue cut with a Beckman scissors. After delivering the severed pieces of tissue with an angular forceps, the nostril was cleansed with a saline solution, and the style came away in a clot of blood. Hemorrhage was quite free, but soon controlled, and the patient allowed to depart with instructions as to use of ice pack, adrenalin and codein, half grain every half hour. In less than an hour he returned with a copious hemorrhage, which was controlled only after several hours of active effort. The blood lost was measured and found to be four and a half quarts, not to count that caught by towels and deposited in cuspidor. While the arterial and venous supply to this part of the lachrymal duct is plentiful, there is an absence of vessels of importance. There was a deposit on the style which possibly eroded the capillaries, weakening their contractile power, or by lacerating the small vessels laterally, they could not contract.

THE USE AND ABUSE OF THE LACHRYMAL PROBE.

Dr. George F. Suker of Chicago presented this paper, in which was brought out the points that very large probes produce undue pain; are liable to produce destruction of the membranous lining of the nasal canal; are very prone to produce strictures, or at least cause undue damage to the small opening into the sac and into the nasal canal; are apt to produce an unduly large lachrymonasal canal and thus invite infection from the nose or cause annoying influx of air into the canal on blowing the nose; necessitate undue slitting of the canaliculus; the possible obliteration of either the canalicular or nasal opening of the sac; the ease with which hemorrhages are caused in the nasal canal and the attending liability of the clot becoming organized and forming new strictures; the resulting large lumen of the canal is of no actual benefit in conducting the tears to the nose. The trend of the argument was to offer substantial vindication, on the one hand, that the use of the very large lachrymal probe is bad ophthalmic practice, and on the other to conservatively uphold the employment of the small or medium probes as infrequently as possible.

Discussion.—In discussing the papers of Dr. Buckwalter and Dr. Suker jointly, Dr. Melville Black of Denver said that it seemed to him the hemorrhage described was nasal rather than lachrymal. He thought the best way to find these lost canulas was by extirpation of the lachrymal sac. He thinks favorably of the large probes, as, if any benefit is to be derived, it is through pressure on the surrounding membranes; but he thinks they should scarcely be used at all except in case of purulent discharge.

Dr. Adolph Alt of St. Louis agreed that it was a nasal bleeding in Dr. Buckwalter's case. He had withdrawn a canula under similar circumstances as those described, and had no difficulty from hemorrhage. Dr. Alt agreed with Dr. Suker as to the use of the probes, and said the small ones caused pressure enough.

Dr. B. E. Fryer, Kansas City, took issue with the statement made that slitting the canaliculus interferes with the capillary power of the punctum. Using the knife toward the globe of the ball, the contact with the eyeball can still be kept up.

Dr. A. H. Andrews of Chicago said he was disposed to think the value of any probe, large or small, would be greatly increased by the use of the electric current in connection therewith, either positive or negative, as indicated.

Dr. Dudley Reynolds of Louisville, Ky., said that no one would undertake to cure a purulent condition of the sac without slitting the canaliculus to secure free entrance of syringe above and exit for the accumulated pus below. In cases where no infection exists he would not use a probe.

Dr. J. A. Donovan of Butte, Mont., said most of these cases were reflex, more often from conjunctivitis or some nasal trouble. He uses a probe in probably one-fourth of the cases, and always passes it as high the first time as he intends it to go, usually under general anesthesia.

Dr. Buckwalter, closing the discussion, said the bleeding had seemed to him not to have come from the nose, from the fact that on inspection the blood seemed to ooze from the region of the nasal duct, and application of adrenalin over the severed part of the turbinate did not control the hemorrhage.

Dr. Suker, closing the discussion on his paper, said the effort should be to establish as nearly as possible a normal condition, and this would not be secured with the use of Theobald's probes.

EXTRACTION OF ANTERIOR CAPSULE IN CATARACT OPERATION—MORPHIA HYPODERMATICALLY IN SIMPLE EXTRACTION.

Dr. Eugene Smith of Detroit, Mich., read a paper on extraction of anterior capsule in cataract operation: morphia hypodermatically

in simple extraction—at the same time showing cataract forceps which he had devised. He advocated the extraction of the anterior capsule in any form of cataract extraction. Seventy-five per cent. of the ordinary cystotome operations on the capsule require discissions later, but such is not the case when the capsule has been removed. Dr. Smith said he had never failed to grasp and remove a large segment of the anterior capsule with his forceps, and with them he has never dislocated a lens. Many times the lens has been removed in its capsule, and never with the loss of vitreous. The forceps, as made by Luer of Paris, contain four teeth on one blade and five on the other. These are set on the curved portion of the blade and only their points made sharp. The curve is located about 2 mm. from the ends of the blade, and is so gentle as not to interfere with the introduction of the forceps into the anterior chamber.

Regarding morphin hypodermatically, Dr. Smith said it was as a myotic, superior to eserin, and the liability to prolapse is lessened by its use. Then, too, the discomfort suffered will cause an unconscious effort to keep the eyes still, which may cause prolapsus by contraction of the orbicularis muscle, all of which is overcome by the use of morphin.

CONCERNING THE SAFEST OPERATION FOR SENILE CATARACT.

Dr. H. Gifford of Omaha followed with a paper concerning the safest operation for senile cataract, illustrating same with a series of drawings showing different methods of introducing a purse-string suture, and immediately after the extraction tightening the thread, thus drawing the conjunctiva down over the upper one-fourth of the cornea. This prevents secondary infection, the loss of vitreous in case of rupture of the zonular ligament, and prevents the iris from prolapse by reason of the additional support which the tense conjunctival flap gives to the corneal flap. Although formerly using the very large conjunctival flap, the essayist now uses the small flap, even though it has the slight disadvantage of making a clean iridectomy less easy, and where a prolapse of the vitreous occurs it is a distinct hindrance to the closure of the wound. He makes an iridectomy in all cases of senile cataract, and, if possible, this is done prior to the extraction of the cataract.

COMPLICATIONS FOLLOWING CATARACT EXTRACTIONS IN GLAUCOMA.

This paper was read by Dr. Louis J. Goux of Detroit, Mich. Dr. Goux described a case of glaucoma in which it was decided to do an iridectomy and cataract extraction in the hope of relieving the glaucoma and restoring vision in left eye. The operation was done

under cocain anesthesia, and as the primary incision was completed the lens followed the knife through the wound, the intraocular pressure being so great. There was considerable escape of vitreous, and the collapse of the eyeball was so complete that no attempt was made to perform an iridectomy. There was some intraocular hemorrhage following operation, and on the fourth day the dressings were wet with a serous exudate, examination revealing a small sinus on the apex of the corneal cicatrix. The vicarious channel still exists, vision is *nil*, and the eye evidently doomed to phthisis bulbi. To the writer the most logical prophylactic measure that suggests itself is that of scleral puncture, whereby the tension may be sufficiently reduced to bring about a return of the anatomic relation of the parts, and making the steps of iridectomy and extraction as easily performed as under normal conditions.

REMARKS ON THE NEED OF THOROUGH ASEPTIC AND ANTISEPTIC
WORK PRIOR TO, DURING AND AFTER CUTTING OPERA-
TIONS ON THE EYEBALL.

Dr. B. E. Fryer of Kansas City, Mo., read a paper entitled "Remarks on the Need of Thorough Aseptic and Antiseptic Work Prior To, During and After Cutting Operations on the Eyeball." He regretted the fact that, while the general surgeon as a rule understands the many factors required for asepsis, such was not the case with a large number of ophthalmologists; he set forth the need for a greater effort in this direction. Dr. Fryer called the man in error who doubts the possibility of an eye asepsis. If the microbic life in the conjunctiva and its appendages inhabited only the surface of this membrane, and were not also flourishing between and under the epithelial cells, the matter of their inhibition, expulsion and death might be a much easier matter. It will not do to assign trauma alone as a cause of failure. It is the duty of the surgeon to shut off sepsis by every safe means known. He advocated argyrol as the best agent known for the destruction of microbes, as it permeates the epithelial cells and destroys the germs lying below them. After washing the surrounding parts with soap and water, they are carefully cleansed with a 2 per cent. carbolic acid solution; then a 30 per cent. solution of argyrol is instilled into the conjunctival sac, and a sterile gauze dressing of several thicknesses, dipped into the carbolic acid solution, is applied and secured with ising-glass plaster, no bandage being used. This dressing is changed each day, it taking sometimes a week, or even three, to properly prepare the eye. In case of nasal disease, he sprays the nares with codein in liquid vaselin daily. This method

of preparation will result in an aseptic interval in the conjunctival sac sufficiently long for the closing of any sort of wound. The general health is carefully looked into and the urine examined before the preparation of the eye, and every precaution as regards instruments and the hands of operator and assistant is taken. Moreover, a gauze cover is applied before the mouths of operator and assistants.

Discussion.—Dr. J. M. Ray, Louisville, opened the discussion on these four papers, saying that he looked with perturbation on the secondary operation. The forceps do not always bring away the capsule, but when this can be done the secondary membrane is materially lessened. The great trouble in using morphia is in the danger from nausea, but heroin can be used with less danger. He prefers the small flap in cataract operations.

Dr. Reynolds, Louisville, described his method of making incision, forming a small flap, and said he always uses cocain anesthesia. He thinks prolapsus of the iris entirely due to faulty dressing and described his method of lightly dressing without bandage, so that no pressure exists. He thinks iridectomy an unnecessary complication to add to cataract extraction.

Dr. H. V. Würdemann of Milwaukee advocated the preliminary iridectomy. With the Snellen flap, with the small conjunctival flap adherence takes place immediately and there is no prolapse.

Dr. John J. Kyle of Indianapolis thought that a point toward good results could be gained by doing away with the fixation flaps, and that the greater the traumatism the greater the liability to infection. He did not think adrenalin should be depended on as a hemostatic. In preparation of the eye for operation he used, in addition to the argyrol, the night before operation, irrigations of hot solutions of boric acid rather than bichlorid.

Dr. J. A. L. Bradfield of La Crosse said the operation that would cause the least injury was the best, and where the lens is large the iris is more greatly injured by the lens passing through than by a simple iridectomy. In the simple operation he would use atropia instead of a myotic, to get the iris well back out of the way.

Dr. Derrick T. Vail of Cincinnati said that holocain instead of cocain could be used as an anesthetic (it being more penetrating), employing 1 per cent. four minutes before operation and then using cocain for two minutes. He thinks the corneal incision better than the flap. Dr. Vail thought Dr. Goux had attempted too much in extracting where the tension was plus 3. He would make an iridectomy with a small keratome, and the tension from within will

cause the iris to spring up into the wound, and the iridectomy is done with the slightest amount of traumatism.

Dr. J. W. Bullard of Pawnee, Neb., had no favorable results from the use of argyrol.

Dr. A. E. Bulson, Jr., of Ft. Wayne, Ind., said that cataracts are not as frequent as formerly, probably because people are taking better care of their eyes, in correcting errors of refraction, etc. He thought argyrol should be used in stronger solutions than is done by many, at least 50 per cent. solutions being advised. He thinks the use of aconin, followed by cocain, intensifies the analgesia as well as the anesthesia.

Dr. Melville Black of Denver advocated the use of a blunt-pointed knife to avoid the cutting when the iris folds back over the knife.

Dr. T. C. Hood of Indianapolis prefers not to perform an iridectomy if the iris can be gotten out of the way without it.

Dr. Briggs said the personal equation is an important element in deciding on any operation, and the operation a man is most familiar with is the best for him to perform. The so-called simple operation is not always the simplest, but in many respects is more complicated than the combined operation, but in suitable cases is as near an ideal method as it is possible to have.

Dr. George W. Suker of Chicago said that, because the eye is a motile organ, germs will not grow in it, and the bactericidal methods employed are not necessarily the same as those employed in general surgery. The flow of tears and the lachrymal gland take care of this. The amount of germs has much to do with the amount of infection. A certain number are necessary to produce inflammatory action. If there are pathologic germs, flush out with mild salt solution. If pneumococcus, ligate the canaliculus. The 2 per cent. carbolic solution is practically *nil* in effect. Germs can be grown in 1/500 bichlorid.

Dr. J. N. Foster of Denver recommended any one who had not done so to use Dr. Smith's forceps.

Dr. Joseph Beck of Chicago said that in the nose and throat the use of argyrol was of no value, and, as far as any good is concerned, the 5 per cent. solution is as good as the 50 per cent., and the balance is an inert substance with a mild astringent quality.

Dr. W. L. Dayton of Lincoln, Neb., said that he was much prejudiced in favor of the double operation.

Dr. T. W. Moore of Huntington, W. Va., called attention to a means of sterilization advocated by White, by introducing 1/5,000 bichlorid in sterilized vaselin.

Dr. Smith, in closing the discussion, said that in case of pro-

lapsus with pain, he is in the habit of dropping a solution of cocain on the prolapsed iris; if no prolapsus, he lifts the anterior lid of the wound and drops the cocain into the anterior chamber, making the iridectomy without pain.

Dr. Gifford, closing the discussion of his paper, said that it was impossible to get the germs all out of the sac, as they are down deep in the layers.

Dr. Goux said he got better results with nitrate of silver than with the argyrol.

Dr. Fryer said that death of the germs could not be produced with ordinary use of bichlorid, but it could be accomplished with the argyrol, and he thinks those who do not get a positive result with it fail to get the pure article from their druggists. He said Dr. Suker's idea in regard to the motility of the eye preventing the growth of germs was an error, as proven by the existence of the gonococci, etc.

DEMONSTRATION ON GLIOMA.

Dr. A. Alt of St. Louis gave a demonstration on glioma and the question of rosettes, illustrating same with numerous photographs. He said that rosettes, or similar figures, are formed wherever glioma cells grow around another tissue or cell, and their presence or absence does not prove that there are several different and distinct forms of glioma. They may be looked on as probably accidents of growth in the glioma. Similar formations are often found in detached and firmly compressed retinae, but they are not identical. Critical studies regarding these points have been few since Wintersteiner first drew attention to those peculiar appearances, so well known before, giving them the name of rosettes, and saying they were due to neuro-epithelial cells, and called certain gliomata neuro-epitheliomata.

Discussion.—Dr. H. Gifford described two cases under his observation which had all the classical appearance of glioma, but operation being refused by the parents, these had gone on for some five or six years without apparent change, much to his surprise.

Dr. Edward Jackson cited a similar experience, occurring, however, in a woman of 40 years of age, with a history of an eye blind for many years, and asked if the cavity formation around the epithelial and other cells derived from normal tissue, as described by Dr. Alt, might offer any explanation in these rare cases that have been reported, and some that have been enucleated and were certainly not of the malignant character of glioma.

Dr. Smith of Detroit told of a case in his practice which had

every appearance of glioma, but the pathologic examination showed it to be an unpigmented round cell sarcoma.

Dr. Alt, closing the discussion, said that it must not be forgotten, in looking into the ophthalmoscope, the glioma is not seen, but rather the anterior portion of the retina. He had himself mistaken a syphilitic gummatous tumor of the retina for glioma, but being refused operation, it yielded to strong antisyphilitic treatment.

SEMAPHORE CHARTS.

Dr. H. V. Wurdemann of Milwaukee showed a "New Series of Semaphore Charts for Testing Vision of Railroad Employees," designed by Nelson M. Black, M.D., of Milwaukee. He uses the figure of a semaphore signal, pole and all, accurately reduced by scale to represent at 20 feet the actual signal seen at one-half mile, with colors identical with those used in actual practice, and background of grayish tinge of the average horizon. The reason for suggesting these changes in the manner of examining railway employes is that the tests usually made are too severe and the conditions entirely foreign to those met in actual work. With this system the person should not be required to name the color, but should state whether the indication is danger, caution or clear.

Discussion.—The idea presented in the paper was highly commended by Drs. Reynolds, Bulson, Smith and Donovan. Dr. Bulson said it was not possible to judge whether a man was fit to run an engine by the tests commonly employed. He said a large number have a well-marked central color scotoma when tested with the perimeter. These should be carefully watched.

In closing the discussion Dr. Wurdemann said that the final test should be made in the railroad yard. He advocated the use of amber glasses to overcome the glare produced by looking into the firebox.

SOME UNIQUE CASES OF AMBLYOPIA.

A paper on the above subject was presented by Dr. T. W. Moore of Huntington, W. Va., three of which occurred in apparently healthy children. He said that if neurasthenia is abnormal susceptibility of the system to fatigue from mental or bodily exertion, this term may express the origin of this condition, which he believes to be an arrest of the functional activity of certain retinal cells occurring at or about the time of puberty, when the nervous system is at high tension and the eyes apt to be overworked. He recommended the constant current, which seems to stimulate these torpid cells.

TOXIC AMBLYOPIA.

Dr. A. E. Bulson, Jr., of Ft. Wayne, read a paper on the "Toxic Amblyopias, with Special Reference to Those Produced by Coffee and Tobacco." He said that in recent cases the prognosis was good and the treatment the same as for other amblyopias, elimination being essential. Strychnin brings about early improvement of central vision and widening of visual fields.

Discussion.—Dr. Briggs, in the discussion of these papers, said these amblyopias were more apt to occur in school girls in a debilitated condition.

Dr. Dudley Reynolds thought many cases were due to auto-intoxication. He recommended the bitartrate of potassium and the pilocarpin treatment.

Dr. J. J. Kyle said he believed we have many cases of anesthesia of the retina not dependent on systemic conditions. He had seen cases react well on the application of the positive pole to the eye and the negative pole to the neck.

Dr. Suker thought the term hysteria in its broad sense a misnomer, and that there must be organic change somewhere.

CENTRAL SUPERFICIAL CHOROIDITIS.

This was the title of a paper by Dr. T. B. Schneideman of Philadelphia, in which he reports a cure in this condition, this being a rare exception to the rule in lesions of the deeper membranes of the eye, not of specific origin, a reason being offered in the fact that the delicate structures of the choroid and retina so rapidly suffer irreparable damage before even the patient is aware of the gravity of his disease, that destruction of anatomic elements and an indelible cicatrix are the consequence. A central scotoma, at first with hardly appreciable edema of the macula, eventually showed yellowish plaques of choroiditis. The treatment consisted in abstention from the use of the eyes for a few weeks, atropin, and profuse general sweating was exsiccated by daily hot baths. The case was of the variety known as central guttate choroiditis, generally known as Tay's choroiditis. The subjects are usually advanced in years, but the patient described was a woman of 30. It is believed that disease of the posterior ciliary arteries is responsible for this affection. Both the choroidal and retinal capillary network of the macula is extremely close, and the rapidity of the blood stream is greatly influenced by the condition of the supplying arteries.

Dr. Edward Jackson said he had seen this case when the vision was beginning to improve, and that it was most interesting.

THE USE OF PURE NITRIC ACID IN THE TREATMENT OF DISEASES OF THE EYE.

Dr. J. W. Bullard of Pawnee City, Neb., advocated the use of pure nitric acid in the treatment of diseases of the eye.

It is one of the most powerful escharotics in the mineral acid group. It coagulates the albumen of the tissues without redissolving it, thus safeguarding its own excessive action. In eye surgery its action can be controlled to a nicety, and it is usually as effective as the actual cautery, while possessing none of the disadvantages of the latter. Its action is deeper than that of carbolic acid, and it possesses the advantage over iodine in that it forms a zone of coagulated tissue around the ulcer, closing the lymph spaces, thus producing a barrier against the further invasion of the healthy tissues by the micro-organisms. In cases of fascicular ulcer, and, indeed, in all conditions of either cornea or conjunctiva where a cauterant is needed, it is the ideal remedy.

Discussion.—Dr. Dudley Reynolds called attention to the literature on the subject.

Dr. Donovan preferred the electric cautery at black heat, just before it reaches red heat; the acid might destroy surrounding tissue, or touching the floor of the ulcer make it even deeper.

The use of the nitric acid was approved by Drs. Suker, J. A. L. Bradfield and Dr. W. L. Dayton of Lincoln, Neb.

Dr. A. Alt asked if the essayist would use it in beginning epithelial cancer of the conjunctival limbus.

Dr. Bullard, closing the discussion, said he had never had trouble in burning surrounding tissue or deepening the ulcer. He had no experience in the matter inquired of by Dr. Alt, but thinks he would use it.

SOME NOTES ON THE USE OF DIONIN.

Dr. Thomas C. Hood of Indianapolis read a paper on "Some Notes on the Use of Dionin."

This is a new drug in ocular therapeutics, known chemically as ethylporphin hydrochlorid, a homologue of codein. It is an analgesic of considerable power; the action of atropin seems to be enhanced by it; it has on the eye a powerful vasodilator and lymphogogic action; it promotes the absorption of exudation deposits in the pupillary space and post-operative debris after cataract extraction; it helps clear up corneal opacities in certain cases of interstitial keratitis, although seeming to be without effect in other forms of corneal opacity. Nine cases wherein it was used with favorable results were reported.

Discussion.—Dr. Alt had used it in iritis, with the result that the pain was immensely increased. He did not think it could be useful in all cases of beginning cataract, for the reason that as soon as *striæ* appear in the lens we have dead tissue to deal with, and this can not be restored and leave a normal lens.

Dr. Bulson thought the use of dionin a distinct advance in ocular practice. If characteristic chemosis is not produced the effect of the drug is *nil*. He thinks it of no effect in cataract, but holds it in high favor as an analgesic in glaucoma.

Dr. Eugene Smith and Dr. Buckwalter reported experience similar to that of Dr. Alt.

Dr. Briggs does not use it so much as he did at first. It seems to him to have little influence in lesions of the cornea, but is beneficial in pain of iritis. Its action is not uniform in his hands.

Dr. Suker said its efficacy was in proportion to the amount of tension present. Its instillation causes great pain unless the drug be chemically pure, and its use should be preceded by cocain.

Dr. Würdemann's experience showed it to be antiseptic, analgesic, a local alterative, a strong lymphogogic.

Dr. Black thought the difference in opinion must be due to difference in preparation or method of using the drug.

Dr. Ray said that, while the chemosis disappears soon, the lids will look water-logged for some days after using dionin.

Dr. Hood, closing the discussion, said he did not mean to convey the idea that dionin was a "cure-all."

SOME FURTHER EXPERIENCES AND TREATMENT OF KERATOCONUS.

Dr. J. A. L. Bradfield of La Crosse, Wis., presented "Some Further Experiences and Treatment of Keratoconus," saying that this disease advanced till a well-formed cone is present, is a comparatively rare disease, but that atonic condition which allows the membrane to lose its normal curvature irregularly, which is the condition always in the early development, is fairly frequent. The most important etiologic factors are faults in nutrition, eye-strain, bad light, unsteady position and errors of refraction. When the softened cornea gives way the resulting irregular astigmatism causes eye-strain, greatly hastening the progress of the disease. Incipient keratoconus is always accompanied by failing vision, and usually by asthenopia. Should the disease continue till the area of affected cornea protrudes and a well-formed cone exists, and a corresponding thinning of the apex takes place, only palliation is possible. Were the name kerato-atonica substituted, the disease would more often be diagnosed at the stage where cure is possible. The essay-

ist suggested as treatment corrections of faults in general system, corrections of errors of refraction, local application of sulphate of alum to diseased cornea, cauterization of the apex of the cone with broad, low-heated galvanic electrode, and subsequent iridectomy for visual purposes. The doctor illustrated what may be done at different stages of the disease with the recital of four cases.

There was no discussion.

BRITISH MEDICAL ASSOCIATION.

Meeting at Oxford, Wednesday, July 27, 1904.

SECTION ON OPHTHALMOLOGY.

Mr. R. W. Doyne, President, in the chair.

RETRO-OCULAR NEURITIS.

Mr. Marcus Gunn opened the discussion on retro-ocular neuritis. He stated that the terms retro-ocular or retro-bulbar neuritis indicated an inflammatory affection which exerts its chief influence behind the papilla, although the diagnosis may rest for a time on subjective symptoms, yet ophthalmoscopic changes nearly always come to our aid.

In the early stages, when our diagnosis rests merely on subjective symptoms, retro-ocular neuritis is liable to be simulated by functional amblyopia, though a careful examination of the pupil should not leave us in doubt.

The amount of amblyopia varies much from normal vision to absolute blindness. The light sense, as tested by Bjerrum's types, is decidedly defective and the color sense is impaired. The visual field is lost in varying degrees, but the central portion is always involved, due to interference of the muscular fibers. One of the distinguishing features is the rapidity of visual failure, this being in contrast to the length of time that papillitis may be present without defective vision, though the failure is never sudden, as in embolism. Recovery soon takes place, the final result being frequently reached in about six weeks from the commencement of the attack.

Exceptionally, no recovery takes place at all.

Pain is frequently complained of, and if it persists the prognosis is more grave. Tenderness indicates inflammation far forward and is thus favorable. Slight changes in the disc begin early as a rule, when the lesion is far forward and the presence of papillitis does not preclude a favorable visual result. Pallor of the disc is practically universal, and in severe form the disc ultimately becomes atrophied.

The etiology was then discussed, and the causes grouped as follows: 1. Inflammation communicated to the nerve from the neighboring structures, such as orbital periostitis, and occasionally from the sclera itself in gouty and rheumatic subjects, similar to the episcleritis with which we are familiar in the front of the eye. Exposure to cold is another cause, as also is inflammation spreading from abscesses at the root of teeth and from the sphenoidal sinus. 2. Inflammation occurring initially in the optic nerve, such as a gummatous deposit, and finally the large class where there is no evidence of the nerve being affected from surrounding structures, they are called "primary," and a large number of these are due to insular sclerosis. Influenza accounts for many, as well as numerous other conditions that affect the general health.

Considerably more women than men are affected in the primary cases, while the average is 37.25 in the male and 31.5 in the female.

Discussion.—Dr. Berry considered what Mr. Gunn had said was so complete that but little remained to be said. He (Dr. Berry) thought that by far the most important point regarding diagnosis was the light difference sense and a sudden onset indicated pressure as a cause. In influenza the olfactory nerves are often affected at the same time, but the recovery of smell is not so likely to occur as that of sight.

Professor Uhthoff said that his experience of the pathologic anatomy of retro-bulbar neuritis was rather extensive, and he produced some very pretty drawings of the conditions found. The toxic cases have really retro-bulbar neuritis, and he regarded the degeneration of the optic nerve fibers, in some cases at least, as the result of interstitial inflammation, though it is impossible in any but recent cases to say whether the nerve fibers are primarily or secondarily affected, though inflammation may attack a certain portion of the nerve and lead to both ascending and descending degeneration. He mentioned several symptoms of the disease that point to the primary seat of the disturbance being in the optic nerve, and thought that drawing conclusions from the neuron theory had not always helped toward the elucidation of the processes of the disease.

In spite of the fact that a central scotoma is by far the most frequent anomaly of the field, we must avoid looking on the disease of the papillomacular bundles as a systemic affection: in true cases, not due to toxic agencies, the size of the scotoma varies greatly.

Contraction of the peripheral field is much rarer than the development of a central scotoma, occurring in about 8 per cent. of his own cases. He showed specimens due to gummatous infiltration and proved the fact that the inflammatory process in retrobulbar

neuritis may start in various portions of the optic nerve. When pain is present on movement of the eyeball it indicates that the inflamed patch is close behind the eye.

Out of 120 cases, he was in more than half unable to find the cause of the condition; in the others, various conditions led to it.

Mr. C. Higgins related the case of a young lady who suffered from optic neuritis in one eye in 1897, and this was followed later by scotoma in the other part of this field, which by degrees developed into complete blindness without noticeable ophthalmoscopic change. The patient died, and the autopsy revealed general meningitis, with complete destruction of the optic nerves.

Mr. Richardson Cross said that the term retrobulbar neuritis seemed to include a very large number of differently caused cases in which certain symptoms were present. Some are chronic and some acute, and the symptom that he mainly relied on was the scotoma for red and green, often in addition to that for white, as well as a more or less rapid loss of vision. Usually, on very careful examination, a pallor or blushing of the nerve is present. A definite papillitis should be given its usual name and excluded from this group. Any part of the nerve may be affected, and when the part near the eyeball is affected there will be pain or pressure and a history of cold or of blood poisoning. On examining the field of vision some impairment at the periphery will be found, while a central scotoma may be absent. It is possible that blood changes, such as anemia, may cause defects of function which may resemble retro-ocular neuritis.

Dr. C. A. Oliver (Philadelphia) agreed as to the great value of observing the light sense, and discussed the method he adapted for examining these cases. He made mention of two well-known though imperfectly studied cases of hereditary retrobulbar neuritis. He has found that the condition invariably appears as a low-grade optic neuritis, with all its concomitant signs and symptoms; slow and progressive degenerative changes followed. He had obtained specimens of the visual apparatus from affected members of the sixth, seventh and eighth generations, and he hoped to be able to trace the collateral branches of a female born and living in England in 1640 from whom the affection has been directly traced.

Dr. Hill Griffith said that his idea of a typical case of retro-ocular neuritis is one in which there is rapid deterioration of vision in one or both eyes, with periorbital pain, the presence of a central scotoma and complete or nearly complete restoration of sight. He thought that some were due to inflammation of the sclerotic at the entrance of the optic nerve.

He could not understand how it was that such cases should be mistaken for functional amblyopia.

He related the case of a young man whose sight rapidly failed without known cause. The fundi were absolutely healthy. Four generations each furnished several examples of apparently similar defects of sight.

Mr. Nettleship agreed with Dr. Berry in the diagnostic value of the diminished light sense, but he considered that slight ophthalmoscopic changes were much more common than Dr. Berry seemed to think. He thought that direct exposure of the patient or his head to cold was a more frequent cause than Mr. Gunn seemed to have stated.

Mr. Victor Miller thought that rheumatism and cold were two frequent causes of the disease. He gave details of 3 cases which arose in this way.

Mr. Gunn, in reply, said that of his cases 27 were due to cold, which was a large proportion. Certain rare cases, associated with severe throat and nose inflammations, were instances of orbital cellulitis, and some of affections of the sphenoidal sinus. The slighter proximal forms of neuritis after exposure to cold occurring in rheumatic and gouty subjects were considered by themselves. Finally, in one or two cases where there had been a sudden change from heat to cold, these seemed to fall in most appropriately under the heading of shock.

Dr. Grossman read a paper on a case of

ASTIGMATISM WITH VARYING AREAS.

Discussion.—Dr. Berry thought that the more common explanation of the change of axis and amount of astigmatism was correct and depended on the size and position of the pupil.

Dr. G. Bull (Paris) thought it imprudent to draw conclusions as to the mechanism of accommodation from the case mentioned, as the refraction always varies so much with different sizes of the pupil. He related a case in which changes in the astigmatism took place from time to time, and this turned out to be a case of conical cornea.

Dr. Grossman in reply said that the explanation of Dr. Berry was well known to him; it did not, however, apply to his case, in which the whole surface of the cornea had been examined by a Helmholtz ophthalmometer. He also pointed out that a trace of keratoconus was present in every cornea if examined with sufficient care. The principal weight lay in the lenticonus; the anterior variety had been known for some time, but the posterior one was last year proved by

him to exist. This became more marked with advancing years, and had not hitherto been reckoned with.

ARTIFICIAL MATURATION OF IMMATURE SENILE CATARACT BY TRITURATION.

Professor McHardy read a paper on the artificial maturation of immature senile cataract by trituration as practiced during 20 years, and the more he did it the more confident did he become of its utility. Complete ripening may be almost certainly secured in from 3 days to 8 weeks after preliminary iridectomy with trituration of the lens through the cornea and pupil, done with judgment and care, and the ultimate results are quite equal to those that have been allowed to ripen naturally. Latterly, with increasing experience, he has not lost an eye, and the results have been most gratifying, though there is no operation which requires more personal experience and judgment for its safe carrying through than does this one. Six or eight weeks should elapse between the trituration and the subsequent extraction, and the eye should always be under atropin when operated on.

Out of an analysis of 100 cases quoted in 1890, 97 were successful and 3 were failures.

He now advocated preliminary iridectomy in both eyes, with trituration of one, and described in detail the operation. He looks for a visible change in the lens from 2 to 8 days later. These artificially matured cataracts come out very well indeed, and there is now no case of immature senile cataract with greatly hampered vision in which he would anticipate any ill effect, and he related a most unfavorable case that did quite well and now has 6/12 vision. His latest statistics show that in only 1.5 per cent. was the cataract insufficiently ripened. In 1.25 per cent. there was troublesome but controllable iritis. In 1.5 per cent. there was a slight loss of vitreous and in 0.375 per cent. was there total failure to restore sight at subsequent operation.

Mr. C. Higgins said that he had given up maturation years ago, and he never did an iridectomy if he could possibly help it.

Dr. Hill Griffith said he had performed the operation ever since Mr. McHardy brought it before the profession, and has seen no bad results which could be assigned to it. It is often unnecessary, but he felt greater confidence in extracting after trituration than in removing a semiclear lens.

Mr. Tatham Thompson recalled 3 cases he had reported 10 or 12 years ago in the Moorfields Hospital Reports. In the case of 2 males a complete cataract was removed within six or eight weeks.

but in that of the female the lens cleared up, and up to the present date the patient is using that eye, though the lens that was left alone has gradually become increasingly opaque. He still employed this method in certain cases and had no fear of ill results.

He, however, thought that the need of this procedure was much less than formerly, now that we are able to wash out the anterior chamber by the method of the late Dr. McKeown.

Dr. Grossmann said he had performed the operation many times, and, although there were no disagreeable consequences, the result was practically *nil* as far as the desired effect was concerned. He had dropped the operation for ten years and saw no need to do it, as he considered washing out the cortex was far more satisfactory.

Mr. Frank G. Thomas practiced trituration in selected cases. He related one case where the patient had had defect of vision for thirteen years and was unable to work, yet the cataract showed no signs of ripening. He trituated and extracted it, and six weeks after the vision was 6/6. The patient, who was a ship's carpenter, returned to work in three months.

INTRAOCULAR HEMORRHAGE AND SYSTEMIC DISEASE.

Dr. Hill Griffith opened the discussion on intraocular hemorrhage and systemic disease.

He confined himself to intraocular hemorrhage in eyes otherwise free from disease, and excluded such cases as hemorrhage from accident, optic neuritis, renal retinitis, etc. Independent hemorrhage may occur from blood changes, diseased state of the finer vessels, back pressure from cardiac disease, embolism and thrombosis.

He had never seen spontaneous hemorrhage in the anterior chamber. Of hemorrhage from the fundus, that from the retina is incomparably more frequent than from the choroid. Intraocular hemorrhage can not be very common, as in his private practice he found it in only 0.5 per cent.

The 83 cases may be grouped as follows:

Retinal hemorrhages	41
Hemorrhagic retinitis	20
So-called subhyaloid	14
Hemorrhage into vitreous.....	8
<hr/>	
Total.....	83

The subhyaloid variety occurred chiefly in women, and in nearly all complete restoration of sight took place. The prognosis as to life and sight is much better in this than in any other variety of hemorrhage.

Of the cases of hemorrhage into the vitreous, there is not much to be said. Of the 61 cases of hemorrhage into the vitreous and of hemorrhagic retinitis, a cause was found in one-half of the cases, e. g., syphilis, bronchitis, heart disease, etc.; 5 cases occurred in tobacco amblyopia, in 7 there was marked sclerosis of the retinal arteries and in 1 there was an arteriovenous aneurism in the retina. Six out of 33 private cases died of apoplexy within a year. Of 28 cases of embolism of the central artery, only 5 presented retinal hemorrhages.

He examined 500 heart cases with pupils under homatropin. Arterial pulsation was made out in 10 cases only, and 8 of these had aortic regurgitation. Retinal hemorrhages were found in 14 cases—that is, in 2.8 per cent., although none of the patients were aware of any defect of sight. Details of several cases were given, and he concluded by saying that Nature appears to have been able to safeguard the eye in grave disorders of the circulation, but nothing like so well against changes in the blood.

Discussion.—Dr. Lucien Howe showed the eye of a man, aged 28, apparently in good health. The first hemorrhage took place into the left eye in 1902 and the second two years later. Glaucoma ensued and the eye was removed in June, 1904. On section there is seen to be an extensive hemorrhage from the ciliary region. The retina is displaced, but the blood does not invade the vitreous to any extent.

Professor Ulthoff showed drawings and the pathologic specimen of a case of preretinal hemorrhage in which the clot lies close under the membrana limitans interna. This is loosened from the nerve fiber layer and the innermost retinal layers are pathologically changed. The position in which this is explains why there is so little tendency for it to spread into the vitreous.

Another interesting specimen was shown of an extensive hemorrhage producing detachment of the retina through a large subretinal blood clot. Such non-traumatic hemorrhage detachments of the retina are certainly very rare.

Dr. S. D. Risley (Philadelphia) related the case of a lady, aged 45, with hemorrhage into the retina near the macula. There was no evidence of any general disease or degeneration. The hemorrhage slowly absorbed, but recurred twice at intervals of 28 days. A few months later she died suddenly from cerebral hemorrhage.

Dr. Charles A. Oliver (Philadelphia) exhibited drawings of the ophthalmoscopic appearances and gave details of the examination of the blood in 2 cases of pernicious anemia occurring in negroes. Sections showed enlarged nerve fibers, with small hemorrhages, but

no traces of ganglia cells were visible. He also referred to a case of splenic anemia with characteristic ocular changes in an Italian.

Dr. George Carpenter cordially agreed with Dr. Griffith as to the necessity of dilating the pupil for making a reliable ophthalmoscopic examination, especially in children. In cases of whooping cough subconjunctival hemorrhages and blood effusions into the lids were not uncommon, and intraocular hemorrhages were also sometimes seen from this cause. He looked on such as accidental and traumatic, and not systemic.

He had also seen a most extensive case of purpura follow an operation for adenoids without an anesthetic, and in this case there were also hemorrhages into the retina, all of which were of traumatic origin. In anemic conditions from many diseases his observations had been largely of a negative nature. He had once seen it in a case of malignant endocarditis associated with optic papillitis.

In 2 cases occurring in adults, one was that of an old lady who had albuminuria and arterial sclerosis and the other that of an old gentleman whose urine was free from albumin, but he had deposits of urate of soda in his ears.

PRACTICAL REMARKS ON MAGNET OPERATIONS.

Professor Hirschberg read a paper on some practical remarks on magnet operations, having now worked with it for 25 years, during which time he has done 307 operations.

He condemned the practice of placing a patient before the giant magnet in order to ascertain if a foreign body were present by the presence or absence of pain. This is liable to draw it into the ciliary body or to withdraw it, together with the iris. He strongly urged the necessity of finding out for certain whether there were a foreign body present or not by means of the sideroscope or *x-rays*. When it is present it should, if at all practicable, be removed, and he preferred to use the hand magnet to the large one of Haab.

As a rule, it is better, he thought, to cut down exactly on the foreign body and then to introduce the point of a magnet rather than of necessity to remove it from the front of the eye or through the wound of entrance.

Should the foreign body remain in the eye it is almost certain to cause destruction of it sooner or later.

He thought that all varieties of magnets were useful, but for the majority of cases he preferred the hand magnet, although Haab's magnet has greatly increased the number of curable cases, as one is able to deal with old cases when the foreign body is embedded.

Among 3,018 cases in his own clinic he found 64 cases of iron splinters in the retina or vitreous on which he had operated. Of

these, 36, or 56 per cent., got good vision; of these, about one-third were operated on with the hand magnet only, two-thirds with giant and hand magnet together. In 9 per cent. the form of the globe without any vision was saved. In most of these such extensive damage was done to the eyeball by the accident that nothing else could be expected.

Dr. Barkan (San Francisco) entirely agreed with Professor Hirschberg as to the benefit to be obtained by the use of the sideroscope, especially with regard to the question as to whether the foreign body is inside the eye or free in the orbit.

Dr. Mackay emphasized the gravity of the ultimate prognosis in cases where a fragment of steel is left within an apparently quiet eye. He mentioned a case in point where, after the removal of a traumatic cataract, the eye remained quiet for a year; an attack of iridocyclitis came on which necessitated the removal of the eye.

Professor Hirschberg in reply said that much harm was often done by searching for a foreign body which was really not inside the eye at all. A vertical projection of the *x*-rays on the palate often was of great assistance.

Dr. Rivers gave the results of his investigations on the comparative visual acuity of savages and civilized people. He came to the conclusion that, apart from errors of refraction, man all over the world had practically the same amount of vision, and in those instances in which savages appeared to possess greater visual acuity than white men it was entirely due to practice and education, being used to their surroundings.

DIAGNOSIS AND TREATMENT OF GLAUCOMA.

Dr. G. A. Berry read a paper on the diagnosis and treatment of glaucoma. He said that in spite of all the work that had been done we are still ignorant of the real nature of the disease, and we do not yet know what it is that leads to the disturbances of balance between the secretion and excretion of fluids in the eye. The discovery of the blocked filtration angle had, he thought, exercised a not altogether favorable influence on the treatment of the disease. He felt well satisfied with the result of iridectomy, though some surgeons were not too enthusiastic about it.

The diagnosis of glaucoma simplex is much facilitated by the character of the field of vision as taken with Bjerrum's screen, and this can be relied on when even the tension and appearance of the disc leaves one in doubt; this result has also been confirmed by Dr. Arthur Sinclair of Edinburgh. Even the earliest stages may be

detected by this method and the mistake may by this means be avoided of mistaking a case of atrophy for one of glaucoma.

With regard to operation, there are some points that should be noted. The incision, although it should be peripheral, yet must not be made too far back. The author prefers to make the incision with a keratome, as von Graefe recommended. It is also certain that ciliary attachment of the iris could not have been removed by von Graefe, who cut off his iris, as this could only be arrived at by tearing it away.

The use of myotics has come in since von Graefe's time, and it is very important to know what is the result of their use in eyes that are not operated on. His belief is that they are practically useless in glaucoma simplex, and that the most they do is to hang up disease slightly, whereas a successful iridectomy generally cures.

The discovery of the blocked filtration angle has led operators to make desperate efforts to get the incision far back. This is a mistaken notion altogether. Even if it were possible to open up this, it would lead to cicatrization and more complete blocking than ever. This either fails altogether or leads to cystoid scars, which, although it may cure the disease, yet must be looked on as evidence of the failure of the iridectomy.

Another result of the blocked filtration angle discovery was the substitution of sclerotomy for iridectomy; this, however, is an altogether inferior operation, and many glaucoma patients have suffered in consequence.

With a keratome he thought the incision could be made with less disturbance of the parts, and the object can be thus obtained of getting the iris away as peripherally as possible without involving the danger zone of the filtration angle. There is no need either to excise such a very wide piece of iris; a smaller piece does quite as well.

It is not unlikely that the slowly progressive forms do not really progress except when from some unknown cause the tension rises temporarily, and young people can certainly tolerate prolonged tension better than old. He concluded by saying that the only permanent results are to be got by iridectomy, that the sooner in the course of the disease it is done the better, that a keratome incision is the best, and that a very large piece of iris need not be excised.

The paper was discussed by Mr. Richardson-Cross, Dr. Brailey, Mr. Wherry, Professor Hirschberg and Professor Uhthoff. The latter stated that he had obtained perceptible improvement of vision in about 5 per cent. of the cases. The condition remained stationary in about 45 per cent; it advanced slowly in spite of operation in about 40 per cent. and it was decidedly worse in 10 per cent.

Mr. Richardson Cross (Bristol) said that if there was any evidence of increase in the glaucoma, however slight, that iridectomy was the only remedy. The difficult cases are those that were almost impossible to tell from atrophy. Instillation of cocain may in these cases set up arterial pulsation, which would be diagnostic, and wherever there is increase of tension iridectomy is indicated.

He uses a keratome and makes the incision $1\frac{1}{2}$ mm. behind the corneoscleral junction, and endeavors to remove the iris right up to the periphery.

Sclerotomy is satisfactory in cases such as glaucoma in myopia, when there is no real narrowing of the angle, but an abnormality in the fluid contents of the eye.

He has some patients who have been using pilocarpin for eight or ten years without disadvantage, and in some the glaucoma has been kept in abeyance.

OPERATIVE TREATMENT OF MYOPIA.

Mr. Adams Frost read a paper on the operation treatment of myopia. There is no doubt that in suitable cases the removal of the lens for this condition gives excellent results. Suitable cases are not so often met with, and since 1896 he had operated on but 39 eyes in 35 patients. The degree of myopia that should justify operation is one that would leave, when done, an ametropia of not more than 4 D.; therefore, no eye should be operated on of less than 15 D. of myopia, which means that it takes a glass of 15 D. to correct when placed 10 mm. from the eye. This means really a myopia of 13 D. The effect on the refraction of removal of the lens in different degrees of myopia was then discussed. With regard to fundus changes, a rough test is to find out if the patient can see J at the far point, and cases are seen in which, with correction, a patient could see but 6/24 or 6/36, yet after the operation they could see 6/12 or 6/9.

The operation is usually called for in young adults. The important question remains to be decided, viz., whether the operation predisposes to detachment of the retina? The answer to this is very difficult to give, as we know so little of the cause of it, and the eyes selected for the operation are those that are most likely to get it. There is the further question, viz., after what interval of time can it be said that it is independent of the operation? Among the author's cases it has occurred at intervals of 6 years, 4 years, 2 years, 8 months, 2 months, and 10 weeks. On the whole, he had a suspicion that the operation increases the liability to detachment. Among his cases one was all right $8\frac{1}{2}$ years after the operation, and twelve others 5 years after, four were all right after 3 years.

Should the second eye be operated on? On the whole, he was against doing the double operation.

Dr. Landolt (Paris) said that eyes that required the removal of the lens were almost always diseased and the sight much impaired. If we operate on the worse eye not much benefit will result, and if we operate on the better eye we run imminent risk. He concluded that the removal of the healthy lens was only justifiable in one of two relatively good eyes of about 20 D. of myopia.

Mr. Johnson Taylor (Norwich) thought that in the operation for the removal of the clear lens multiple small punctures were safer than freely opening the capsule and subsequently evacuating the lens matter.

Mr. Ernest Clarke gave a résumé of twenty years' treatment of myopia, in which he advocated the full correction of myopia and compound myopic astigmatism. His method is to estimate the ametropia under a mydriatic and order the full correction for all cases. In high degrees the patients sometimes refuse to accept the full correction, but with this exception he never reduces the spherical glass even for near work. Out of 532 cases who had been under observation for more than two years, the majority showed no increase of the myopia, and in only three instances had the myopia increased as much as 4 D., and only sixteen had any increase worth noticing. In some it was necessary to stop all near work, but for these full correction was always given. If this were carried out generally he felt sure that progressive myopia and high degrees would become almost unknown.

Dr. Angus M'Gillivray (Dundee) had ascertained that the temperature of the cornea was 18 F. below the body temperature, and this had an inhibitory effect on the growth of pyogenic organisms, which as a rule flourish at the body temperature.

The closure of the lids in photophobia raised the temperature and conduced to the growth of micro-organisms. For this reason he deprecated the use of bandages in corneal lesions. To combat the photophobia he used cocain ointment, as this did not produce desiccation of the cornea as did the aqueous solutions, and the eyes could by this means be kept open.

The removal of photophobia restores nictitation, and this cleanses the surface of the cornea.

In cases of wounds where closure of the lids is necessary, the temperature of the cornea should be kept down with iced compresses.

KERATITIS PROFUNDA.

Discussion.—Mr. Holmes Spicer opened the discussion on keratitis profunda. He stated that many cases of interstitial kera-

titis were met with in which there was no trace or history of syphilis, congenital or acquired, the cause often varying or being obscured. Males are most frequently attacked, and the average age is 40. Often there is a history of alcohol, dyspepsia, gout, rheumatism or pyorrhea alveolaris. A small number were in good health, but with gouty family histories. Often the onset was determined by an injury, and the disease lasted about three months.

The cornea is affected in two ways—either a central disc of opacity or else a peripheral cone with formation of new vessels. Striate keratitis is nearly always present in the early stages, but soon gives way to a uniform opacity. The corneal surface always becomes edematous. If fluorescein is put into the conjunctival sac, it is absorbed into the eye and the deeper layers of the cornea become stained and also the endothelium. Sometimes this staining is patchy and punctate. Iritis is present in about one-fourth of the cases, and cyclitis is shown by the presence of keratitis punctata in nearly one-half.

The primary cause is disease of the blood vessels, and if they be ligatured the endothelium is shed and the aqueous soaks into the cornea and produces edema and striate keratitis on its posterior surface and cellular infiltration of the cornea itself.

The local treatment consists of hot fomentations and atropin, and if the tension be raised paracentesis should be done. Iridectomy or peritomy is generally harmful. Subconjunctival injections are useless and irritating. The underlying constitutional condition should be determined and treated. This is of the greatest importance.

Mr. Power pointed out that cases of deep-seated keratitis presented considerable variations in their course and termination. Some strumous cases quickly passed into suppuration. He gave an instance which caused the sight to be reduced to light perception only. Iridectomy in one eye did no good, and the child was regarded as permanently blind. In the course of many months clearing took place, and the child can now see to read. He mentioned other cases associated with general debility.

Mr. Cyril Walker, Bristol, commented on the frequency of interstitial keratitis in Bristol which did not follow the usual course. He instanced 2 cases associated with pregnancy, which left a pyramidal opacity in both eyes. He asked if exposure to cold was considered a frequent cause of deep-seated keratitis.

Mr. Grainger, Chester, said that most of the cases he had seen occurred between the ages of 33 and 38, and women were more frequently attacked than men.

From its course and result he looked upon it as quite apart from ordinary interstitial keratitis. The progress is always slow, and there are punctate opacities in about one case in four. The regular use of dionin has given very satisfactory results.

Dr. Carl Koller said that in the acute stages his treatment was much the same as most people's, viz., atropin, hot fomentations, etc., but in the later stages he uses potassium iodid internally and yellow precipitate ointment locally. Now this causes great reaction, as iodid of mercury, which is an irritant, is found in the tissues. Great reaction takes place at first, but toleration is established and the cornea clears.

Lately he has used 5 per cent. dionin, and could testify with Mr. Grainger as to its usefulness. He uses it alternately with the preceding.

Dr. Hill Griffith asked whether anesthesia of the cornea had been tested, and whether Mr. Spicer looked upon it as a primary lesion of the blood vessels of the uveal tract, especially of the ciliary body, and whether any fundus lesions were found when the cornea had cleared.

SUBCONJUNCTIVAL INJECTION OF COCAIN IN THE EXTRACTION OF CATARACT.

Dr. Carl Koller read a paper on the subconjunctival injection of cocain in the extraction of cataract.

It is now twenty years since it has come into general use, and owing to the iris remaining sensitive, he soon began to discard the method of instillation only, and to inject it subconjunctivally. This is his method: First, a few drops are instilled into the conjunctiva. After two minutes two or three drops of a 5 per cent. solution are injected beneath the ocular conjunctiva at the point where the fixation forceps are to grasp. One must be careful not to inject it into the episcleral tissues, but simply beneath the conjunctiva. An interval of five or six minutes should now ensue while the eye is covered with a wet pad. The pupil will now be dilated, and the operation may be performed entirely painlessly. In glaucoma, if the eye is inflamed, he uses a general anesthetic, but if not, a mixture of cocain and pilocarpin with the subconjunctival injection of cocain is quite satisfactory, and it has no drawbacks.

Dr. Hill Griffith asked if Dr. Koller had used it for enucleation of the eyeball. He had on one or two occasions done it himself without a general anesthetic, and had even done it before the days of cocain without the patient showing much sign of pain or of shock.

The president said he had frequently removed eyes under cocaine with excellent results, but Dr. Koller said he always used a general anesthetic for this operation.

THE DETERMINATION OF THE RAPIDITY OF THE LATERAL MOTIONS OF THE EYE.

Dr. Lucien Howe, Buffalo, demonstrated a method of determining the rapidity of the lateral motions of the eye. This was done by reflecting a bright arc light on to the cornea, and then as the eye was swung from one side to the other the corneal reflex was made to focus on to a photographic film in a camera. At the same moment the time was measured by the vibrations of a tuning fork, and these were also photographed.

The point of practical importance is to determine the time the eyes take to swing inward or outward, and the length of the interval between the two motions. The simplicity of the apparatus, compared with that used by other observers to determine the same thing, is the chief feature about the communication.

Dr. McGillevray asked if Dr. Howe had made observations on eyes which had had advancement or tenotomy done.

Dr. Hill Griffith asked if Dr. Howe had tried it in alcoholics, and whether the motions of the eyes thus graphically recorded could be used as legal evidence of sobriety or the reverse.

Dr. Howe said that he had measured the movements of the eyes after squint operations, but not in cases of alcoholism, which would be most difficult to do.

MODIFIED BOWMAN SUCTION SYRINGE.

Mr. Watson Griffin, Hove, showed a modified Bowman suction syringe that he had invented for the purpose of removing broken-up lens matter from the anterior chamber. It consists of an ordinary syringe, whose piston was kept out by means of a spring; this was compressed and then allowed to gently come out by relaxing the pressure on the spring. It was cheaper and more efficient than the ordinary suction syringe of Bowman.

Professor Hirschberg gave an historical account of suction operations on cataracts.

WORD-BLINDNESS WITH SLIGHT HOMONYMOUS HEMIANOPSIA.

Dr. James Henshelwood, Glasgow, described a case of word-blindness with slight homonymous hemianopsia. The patient was a man, aged 58, a teacher of languages, who was first seen on Aug. 29, 1894. About a month previously he was startled to find that he could not read a French exercise which a pupil gave him to cor-

rect, and he then found he could read nothing. This condition remained. It was found he could see the letters quite well, but could not name them. He could, however, read figures perfectly correctly and there was no lowering of the visual acuity. He could name objects and pictures of objects quite correctly, and could write to dictation with perfect ease, though he could not afterward read what he had written. No other mental defect could be ascertained, and his speech and memory were excellent. The perimeter showed right lateral homonymous hemianopsia. The fundi were normal, and general health was good. After six months' daily practice he began to recognize letters, but never learned to read. The effort was so great that he eventually gave it up. Eight years later he had again lost the visual memory of letters. Up to his death, in August, 1903, his symptoms remained the same, and nothing new developed during the nine years he was under observation. He died quite suddenly. On postmortem examination a recent hemorrhage was found in the right cerebellar lobe. On the inferior aspect of the left occipital lobe was a triangular area of sunken and atrophied appearance, the pia mater forming on this the outer wall of a cyst, from which, on puncture, 2 or 3 drams of clear fluid escaped.

The left lateral ventricle was widely dilated, and this practically replaced the lower half of the occipital lobe. The cause of this was probably thrombosis.

This case throws much light on the subject of word-blindness, and indicates very precisely the situation of these centers. The paper is most exhaustive, and should be consulted by all those interested in the subject.

CONGENITAL WORD-BLINDNESS.

Dr. Henshelwood also read a paper on a case of congenital word-blindness. The patient was a boy, aged 12, who was first seen in March, 1902. He had been at school seven years, and there had been from the outset the greatest difficulty in teaching him to read. He made no complaint of his vision. His refraction and eyes were normal, and in all other respects he was a quick and intelligent boy, and had no difficulty whatever with arithmetic and could read all combinations of figures, but he could not read more than the simplest words by sight, and not always then unless he was allowed to spell them. By taking him out of the class and giving him short lessons alone he made excellent progress. As this is the fifth case Dr. Henshelwood has recorded, he thinks they are not really so rare, but they are unrecognized.

The cause of this is now pretty generally agreed to be a defect in the angular gyrus of the left side. In nearly all these cases the difficulty is overcome by perseverance, though such children can not be taught in class, and many short lessons with a teacher are far better than one long one.

Dr. Wilfrid Harris said that the first case recorded by Dr. Henshelwood seemed to show that the function of the angular gyrus is really concerned with the visual memory of words alone, and that only the left angular gyrus is thus important in right-handed people.

Mr. Bishop Harman said that he was surprised at the author's belief that the condition was rarely recognized by surgeons. It was so well recognized that the London County Council provided "special schools" for them, and in the report Dr. James Ker gave details and specimens of handwriting, etc., of those who had been taught in the special ways necessary. He thus considered that the much-maligned English educational system was in this respect ahead of the Scottish.

Dr. Henshelwood, in reply, said he was glad to find that his work had been so well recognized that now ophthalmic surgeons did recognize these cases. His case gave most important pathologic confirmation to the views of Dejerini and Serieux.

ALBUMINURIC RETINITIS IN A CASE OF PARENCHYMATOUS NEPHRITIS
IN A CHILD.

Dr. George Carpenter read a paper on albuminuric retinitis in a case of parenchymatous nephritis in a child. Chronic interstitial nephritis in children is a rare condition, but nothing like so rare as is usually supposed.

The child, whose case he now brought forward, was a girl, aged 10, who was first seen in November, 1885. Her illness commenced in June, 1884, with headache and abdominal pains followed by sickness. She had five of these attacks in a fortnight. Blood appeared in her urine on Nov. 7, 1885, and since then has been noticed in varying quantities. She passed only about one pint in twenty-four hours, and this contained about one-eighth albumin. She had neuro-retinitis in both eyes. The eye changes were minutely described and drawings of the condition were shown. During December, 1885, and January, 1886, she passed about two pints daily, and the most albumin that it ever contained, when not obviously containing blood, was one-half. Abdominal pains recurred frequently, and on April 8, 1886, the urine was nearly solid on boiling. Some edema was then noticed about the ankles. The par-

ents then suddenly determined to remove her from the hospital, and she died very soon afterward. The doctor who attended her at home removed the kidneys; they were of the "large white" variety, and the pelvis and ureter were enlarged and thickened.

LYMPHATIC FOLLICLES IN (APPARENTLY) HEALTHY
CONJUNCTIVÆ.

Mr. Bishop Harman read a paper on the lymph follicles in (apparently) healthy conjunctivæ.

The presence of lymph follicles in the conjunctiva is of importance, chiefly from the close resemblance it has to trachoma, for which it is sometimes mistaken. He went carefully into their anatomic structure, and mentioned how extremely common it was to find them quite visible to the naked eye.

In an extremely sanitary and healthy district in the northeast part of London, in which there were no aliens, he carefully examined the school children, and among them almost every condition of follicle could be found, and all of them showed no sign of conjunctival disease. Of 1,011 children, 58 per cent. had follicles. From the ages of 3 to 9 the girls and boys are almost equally affected, but at the 10th year onward the girls show about 30 per cent more cases than the boys, and this continues to the end of school life.

It was then noticed that the presence of nits in the hair was similar to that of the follicles in the girls.

This is to be explained by the fact that about the age of 10 the girls begin to take their share in domestic work, and as a reward are left to themselves to look after their personal cleanliness. This they neglect, and their health suffers, nits become more frequent, and the follicles in the conjunctiva become more apparent. It is too early for the onset of puberty to have any effect.

Some of those who have the largest follicles get quite well with mild remedies, and severe treatment leads only to scarring and permanent damage. These cases are exactly analogous to the enlargement of the tonsils, and to the hypertrophy that produces adenoids. These cases are not contagious, but the general health is usually affected, and so they may fall victims to any virus that may be about and a simple catarrh may give the case a most serious aspect.

Of 12 cases examined bacteriologically the author found the Koch-Weeks bacillus twice, the Morax bacillus once. Streptococci and staphylococci three times. They all made a rapid recovery.

The conclusion is that the diagnosis of follicular conjunctivitis is defective.

COMBINED TREATMENT OF DISEASES OF THE EYE, ESPECIALLY IN THAT OF THE UVEAL TRACT.

Dr. C. H. Burnham, Toronto, read a paper on the combined treatment of diseases of the eye, especially in that of the uveal tract. This treatment consists of the internal administration of mercury and iodid of potassium, with the hypodermic injection of pilocarpin. The details of this statement, which he has been using for fifteen years, have been published elsewhere. He gave examples of various diseases of the eye, especially of sympathetic disease that had greatly benefited by its employment.

THROMBOSIS OF THE CAVERNOUS SINUS DUE TO EMPYEMA OF THE SPHENOIDAL SINUS.

Dr. Adolph Bronner, Bradford, read notes of a case of thrombosis of the cavernous sinus, due to empyema of the sphenoidal sinus. There were no symptoms to account for its origin, except anemia, which had existed for several years. The patient was a stout but anemic girl, who had been quite well up to February 24, when she had some headache. On March 1 there was slight swelling of the right eyelids and some proptosis. On March 5 there was ptosis and chemosis, and eye movements limited; temperature 101. Next day she was worse; temperature 103.6. There was no papillitis, but the veins were swollen. On March 13 temperature was 106. She gradually got worse, and died on March 31. On post-mortem examination both cavernous sinuses were thrombosed and filled with pus, and so were most of the other intracranial sinuses.

Both sphenoidal sinuses were full of pus and granulation tissue, and this was evidently the starting point of all the mischief. This is very rare, and the entire absence of symptoms is remarkable.

The injection of antistreptococcus serum did no good, but if anything made matters worse. He expressed the hope that this case would induce surgeons in cases of obscure optic atrophy to carefully examine the nose and sinuses. C. DEVEREUX MARSHALL.

BERLIN OPHTHALMOLOGICAL SOCIETY.

Meeting held June 16, 1904.

THERAPEUTIC USE OF TUBERCULIN.

Discussion.—In reference to the paper on therapeutic use of tuberculin read by Dr. Schoeler at the last meeting, Professor von Michel says that he does not ascribe any therapeutic importance at all to tuberculin; cases of eye tuberculosis often heal by themselves.

Dr. Schoeler is sure that his treatment was encouraging and ought to be tried more often.

Professor von Michel insists that injections of tuberculin in his cases had a disastrous influence, not only on the number of the nodules, which had increased rapidly, but also on the general health of the patients, although he had tried this treatment only on vigorous persons.

INFLUENCE OF DIFFUSION ON THE RETINA

Dr. Herzog reported on experiments he had made to prove the influence of diffusion on the retina. After dwelling on the elements of osmosis and osmotic pressure, he stated that the retina is a semi-permeable membrane, subject to all the laws of osmosis. He placed a frog's eye (light-adapted) in a 10 per cent. solution of nitric acid and removed the front half of the bulbus with the whole vitreous. After ten minutes transparent vesicles formed on the retina, increasing in size and flowing together; these vanished, if the eye was taken out. Microscopically, the inner nuclear layer showed fissures and detachment; the pigment of the cones was in "Lichstellung." On the other hand, if a dark-adapted frog's eye was examined, the detachment of the retina showed the usual clinical localization. He does not know whether the retina acts this way *in vivo*, and has not made any experiments to examine it, since the experiments would involve too many errors.

Discussion.—Dr. Wessely doubts whether this process has anything to do with osmosis, since the retina is totally surrounded and imbued with nitric acid.

Dr. Ginsberg inquired whether the microscopic picture often found in high myopia resembling this detachment were perhaps due to the same cause.

Dr. Abelsdorff was reminded of the fact that the wandering of the pigment has never been able to be proved in any mammalian eye at all, so that what is true for frogs' eyes does not count for human eyes.

Dr. Herzog denies the importance of Dr. Wessely's objections; as to myopia, he does not dare to connect the two facts. To Dr. Abelsdorff, he replied that he was only talking about frogs' eyes.

Professor von Michel showed a case of tuberculous interstitial keratitis and a neuritis retrobulbaris, with hemorrhages around the papilla, edema of the macula, and in the periphery of the fundus numerous whitish spots, which proved to be nodules. Tuberculin reaction positive, fever 39.8. Dr. Hamburger would like to know whether the fundus showed any change during the reaction. Professor von Michel answered he had not seen any.

Professor von Michel showed two cases of myasthenia gravis

pseudoparalytica, with nearly exclusively ocular symptoms. The boy, 7 years old, had a ptosis; walking around the room sufficed to increase it. The other patient, a man of 57, also had a weakness of the internal recti, which was gradually becoming to be a paralysis. The orbicularis and the deltoideus also showed myasthenic reaction. No inner muscle of the eye (spineter and ciliary) had ever evinced any change. Among 20,000 patients Professor von Michel found about five or six such cases.

Dr. Loeser reported on three cases associated with Graves' disease.

Finally, Professor von Michel demonstrated numerous specimens of tuberculous and other eye diseases, partly with the epidiascope.

DR. E. H. OPPENHEIMER.

WILLS HOSPITAL OPHTHALMIC SOCIETY.

St. James's Hospital, Dublin, April 11, 1907.

Dr. Charles A. Oliver in the Chair.

DISEASES OF THE CONJUNCTIVA.

The chairman called on Dr. Harold G. Goldberg to open the discussion on the above subject. This Dr. Goldberg did by demonstrating the conditions seen in an exhibit of macroscopic and microscopic specimens, illustrating the gross and minute changes found in various conjunctival diseases. He showed the microscopic appearances of the invaded structures in diphtheritic conjunctivitis (the germ of diphtheria being, he said, quite a frequent successful invader in the conjunctival soil), and differentiated them from those which are seen after gonorrheal conjunctivitis. He believed that the streptococcus is, as a rule, responsible for the gross changes seen in the diphtheritic types of conjunctival disease. He showed the relative effects of benign and malignant tumors on the membrane, contrasting these in their differences. He exhibited the behavior of various granulomata, and gave a résumé of the condition of the conjunctival structures in a case of perforating panophthalmitis as one of the results of endogenous infection from typhoid bacilli. He said that there was little known of the difference in the histology between diphtheritic and pseudomembranous conjunctivitis; the Klebs-Löffler and xerosis bacilli being so much alike morphologically as to make their differentiation difficult. He dealt at some length as to the relative actions of the various antitoxins. He spoke of the epidemics of conjunctival disease to which the hospital had been subjected, and cited the different modes of treatment by which the condition had been successfully combated. He had

found that the recent epidemics of conjunctival disease in this city (Philadelphia), could be traced to the *diplococcus ancolatus*. He compared these findings with those which he had read of as having been seen in other cities and countries.

From a large experience Dr. Frank Fisher had found that by a constant repetition of similar cases he had been enabled to differentiate clinical signs which he had learned to treat and manage by definite and well gauged rules. One of these had been the free use of saturated solutions of chlorate of potassium in diphtheritic and so-called pseudomembranous conjunctivitis. He had found that if this drug is used in such cases there is less danger of corneal involvement, and that there are fewer cicatrices left in the conjunctival membrane. In association with the drug, in combination with warm applications and the use of mild detergents locally, he made free internal use of the tincture of the chlorid of iron. He stated that he had found that the application of nascent silver salts was not of any benefit in cases of diphtheritic conjunctivitis. He had noticed that the cicatrices following diphtheria of the conjunctiva resembled a condition of cirrhosis. He classified pseudomembranous conjunctivitis and diphtheritic conjunctivitis together. He always treated diphtheria of the conjunctiva systematically as well as locally. He believed trachoma to be nothing more than the excessive stages of ordinary follicular conjunctivitis; trachoma being a second or tertiary stage of true granular conjunctivitis—a condition in itself in which there is more or less atrophy of the follicles. In these cases, there are, he believed, all of the sequelæ of repeated inflammation, such as contraction and distortion of the lid, nebular pannus, and dry, hardened or greasy remains of the conjunctival membrane. In true trachoma he took care to express all of the follicles in the conjunctival sulcus, preferably by the finger nails, following this procedure by the use of tannin, boroglyceride, and silver. He believed that dilation of the lachrymal canals and ducts was useful in offering better drainage for the vitiated secretions. Empirically, he had become favorably impressed with the results that he had obtained by the judicious use of alum in the late stages of gonorrheal conjunctivitis. He also usefully employed solutions of acetate of zinc, chlorid of zinc, bichlorate of soda and boracic acid. Adrenalin he had used, but did not find its employment of any advantage.

Dr. S. Lewis Ziegler's experience in acute conjunctivitis had been that the more simple and the less irritating the application had been the more quickly good results were obtained. As a rule, he employed 4 or 5-grain strength solutions of silver nitrate for the

first application only, followed by such drugs as glycerole of tannin, boroglycerid and argyrol. These should be used *ad seriatim*, as all local applications sooner or later lose their effect and must be changed. He had found the best results from the employment of biborate of soda and boric acid in simple solutions. If the mucopus persists, alum, 1 to 4 grains to the ounce, will be most efficient. (The acetate of zinc is of value when the convalescence is slow.) In the chronic forms of the disease, such as trachoma, he had had useful recourse to rapid dilation of the lachrymal passages, together with intranasal applications.

In the purulent forms of conjunctivitis he made a daily application of a 10-grain silver nitrate solution, neutralized by salt, and washed off with boric solution. Argyrol he also employs or else gives to the patient to be used at home. Mercuric bichlorid (2 grains to the pint) he used for irrigation in the early stages (and later 1 grain to the pint), with the large bulb dropper, every fifteen minutes to a half hour, day and night, until acute stage is past. He applied ice pads constantly.

Dr. P. N. K. Schwenk said that his experience had been that all cases must be treated empirically. In simple ones he used weak solutions of nitrate of silver, boracic acid and biborate of soda. Believing in the identity of granular conjunctivitis and trachoma (they differing alone in points of rapidity of development and severity of symptoms), he resorted to similar treatments modified to suit the existent conditions. Empirically, he had found the use of boroglycerid of great value in the treatment of diphtheritic conjunctivitis.

Dr. Charles A. Oliver stated that the majority of cases of conjunctival disease were microbic in type, the clinical signs being in definite relationship with the amount of reaction to the preponderant acting germ. He considered that every ordinary conjunctiva, no matter how well cared for hygienically, was a harboring place for germ life—of both useful and harmful types; in fact, he considered that the membrane was, by this reason, kept in better condition and made better able to withstand the attacks of injurious forms and coarse degrees of injurious bacterial colonization. He explained the difference between the scavenger types of germs and the serum-consuming varieties. He showed how the anatomic relationships and peculiarities of structural formation rendered it more difficult for certain forms of bacterial growth (for example, the difference between related bacilli and cocci) to gain access to favorable nesting grounds. He subdivided conjunctival disease in strict accordance with the clinical manifestations of the prevalent

germs, and was thus able, by repeated bacteriologic study during the course of the disease, to so regulate his therapy as to give the quickest and the best possible results in any given case. He had ceased to be disturbed as to prognosis in cases in which formerly he had had the gravest doubts as to useful recovery. Cleanliness of the parts, hibernation of germ life, destruction of the floral cells, with the least disturbance to the invaded faunal cell as possible, with protection to the most important contiguous tissues, constituted his bases for therapy. He emphasized the relationship of the state of the patient's general health to the conjunctival condition at hand, this being particularly true in the gross forms of disease—for example, in Klebs-Löffler bacillus conjunctivitis, in which he had obtained the most brilliant results by the early use of subconjunctival injections of antidiphtheritic serum; and in the scavenger types, as a part of multiple infections of the mucous tract, in which general mucous therapy was a necessity.

In his bacteriologic studies he had come to the conclusion that all conjunctival diseases are primarily the results of mixed infection, one or more types of germ life gaining the ascendancy and giving the clinical peculiarities to the individual case. In the destruction of the parts, he had found that it was not the prevalent microbe which destroyed the organ, but that the particular microbe invasion so reduced the protective agents in their activities as to allow them to become the prey of the pyogenic forms of bacteria. He stated that it should not be forgotten how certain types of germs, being in an involutional state from their ancestral forms, having become exhausted in different mucous soils (those in the urethral canal, for example, giving rise to a chronic and hardly noticeable gleet), are placed in a new pabulum field (in a fresh soil, such as the conjunctiva), would soon have their successors become optimal in condition and virulent in action (coarse gonococcal conjunctivitis). Conversely, from experiments and studies that he had made, he had found that gross forms of gonococci flourishing in a good soil, would, when placed in previously used and hence partially barren soils, soon become involutional in condition, oftentimes monstrous in form and negative in action.

He described the term "granular conjunctivitis," believing the conjunctival inflammation as merely secondary to reactions in the underlying microbial nestings of vegetable life, with destruction of the adjacent faunal cells, resulting in cicatricial contraction and loss of the involved parts. He showed why the conjunctiva of the infant is less liable to injury from gonococci than that of the adult, giving a series of illustrative cases for explanation. He cited sev-

eral examples occurring in the eye wards of the Philadelphia and Presbyterian Hospitals which well illustrated these differences.

Dr. L. E. Marter spoke of the injurious effects of chlorate of potash if used in too great amounts. He gave a most interesting account of his experiences with the employment of varying strengths of solutions of permanganate of potassium in the different types of conjunctivites, and inquired if the experience of the other members had been similar with that of his.

Dr. Samuel H. Brown stated that he wished to place on record the almost constant plan of successful treatment of chronic cases of trachoma in the clinic of Dr. Conrad Berens, his chief—i. e., by the use of 50 per cent. strengths of boroglycerid. Incidentally, he had seen most favorable results in such cases from the local employment of graduated dosages of adrenalin, he having found this drug a most excellent adjuvant.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Friday July 9.

John Tweedy, P.R.C.S., President, in the chair.

PATHOLOGY OF THROMBOSIS OF THE CENTRAL VEIN OF THE RETINA.

Mr. George Coates gave a lantern demonstration on the pathology of thrombosis of the central vein of the retina.

He showed preparations from five cases. In four of these an organized thrombus was found in the central vein; in three of them complete obliteration of the vein in a portion of its course had occurred from this cause, and in one of them the manner of re-establishment of the lumen by the accession of collaterals from the trabeculae of the nerve was well shown. In a fourth case canalization and not obliteration of the thrombus had occurred. In a fifth no thrombus was found, probably because the optic nerve was cut longitudinally, in the usual manner, and not transversely, as is desirable when a lesion of the central vessels is suspected.

He also dealt with the changes found in the retinal vessels of these cases, viz., 1, endothelial proliferation; 2, thickening of the connective tissue of the walls; 3, hyaline degeneration, a change superimposed on the last; 4, secondary thrombosis.

Various combinations of these changes might be found both in arteries and veins. The use of Weigert's elastic tissue stain in researches on vessel changes was also illustrated.

C. DEVEREUX MARSHALL, F.R.C.S.

Abstracts.

EDWARD ADAMS SULLIMWAY, M.D.

PHILADELPHIA.

Remarks on the Refraction of the Newborn. Elschmig (Vienna) (*Zeitschr. f. Augenheilk.*, January, 1904), has determined that a myopic refraction of between 4 and 7 dioptries is found relatively often in new-born children, which disappears on instillation of atropin, and gives place to low hypermetropia. In some of the children, especially in those who made active movements of the eyes (convergence or movements upward and downward), the refraction varied and myopia was temporarily present; here, also, paralysis of the accommodation by atropin showed hypermetropia or emmetropia. In a few, without atropin, hypermetropia or emmetropia was found to exist, always in children with quite wide pupils and almost motionless eyeballs. He believes the myopia is due to spasm of accommodation, and explains thus the differences in the observations of von Jaeger, who found the greater number of cases to be myopic, while later observers, who made their investigations after the use of atropin, have found nearly all hypermetropic. He considers the spasm as an abnormal reaction of the eye to the first light irritation; it can be considered an associated movement in those cases in which there are frequent purposeless, exaggerated movements of convergence; ordinarily it is to be considered as an automatic innervation, resulting from the first attempts at sight.

The Availability of Cataphoresis in the Local Treatment of Syphilitic Affections of the Eye.—E. Krückmann (*Zeitschr. f. Augenheilk.*, January, 1904) has made use of the method of cataphoresis in introducing mercury locally into the system in syphilitic diseases of the eye. He found, experimentally, that currents of 1.2 to 1.3 milliamperes could be applied to the eyeball without producing necrosis or any changes in the finer tissues of the eye. Of the various salts of mercury, sublimin 1/3,000, and succinid of mercury, 1/4,000, were found to be the least irritating. The method is to be recommended only for rapid or temporary use, a general mercurial treatment being required at the same time. It may be used in the following syphilitic conditions: 1, In rapidly growing or early appearing nodular processes (tuberous syphilide and gumma resembling episcleritis); 2, in obstinate inflammations when the

body is already over-saturated with mercury; 3, for diagnostic purposes, when the general symptoms have not appeared, and it is important that they should not be masked; 4, for very rapid action; 5, in the presence of mercurial stomatitis. It is applied by especially constructed electrodes (illustrated in the original), which can be attached to the street current. A current of 0.8 to 1.0 milliampère is employed for 20 to 30 minutes, and the current is reversed every $2\frac{1}{2}$ to 3 minutes. The treatment may be repeated every other day, and from three to ten treatments are usually sufficient. The author reports 28 successful cases. The method was also tried in interstitial keratitis and in sympathetic ophthalmia, without result. Protargol solution was used in a case of metastatic gonorrheal iritis, and hetol in tubercular affections of the anterior part of the eye, but again unsuccessfully. Krückmann thinks the method may prove of some service in large clinics, and especially if bactericidal or anti-toxic serums can be found, which can be utilized in this way. In diseases of the posterior part of the eye, cataphoresis would be of little value, as the lymph stream passes from behind forward, and it is rarely possible to apply the electrode posterior to the equator.

Reviews.

Ultra-Microscopic Investigation of the Cause of Sympathetic Ophthalmia. — (Rählmann, in *Deutsche med. Wochenschrift*, 13, 1904).—This communication belongs strictly to the class which the Germans call "voreilig." On a very slender basis of fact the author announces with great positiveness a new theory of sympathetic ophthalmia, as if that disease were already not suffering from a great disproportion between fact and theory. Rählmann has taken a most active part in the practical application of the discovery of Siedentopf and Zsigmondy (who, by an especial use of reflected light, has shown that particles of an incredible smallness may be observed); and, after a number of interesting observations pertaining to the physics of solutions, he has attempted, by the same method, to solve the problem of sympathetic ophthalmia. The field is a most promising one, since the results of recent investigations have made it seem more and more probable that the disease must have for its cause a germ of ultra-microscopic size. Rählmann's facts are as follows:

A young man has a scleral rupture about 8 mm. long, 2 mm. below the right cornea. Some eight weeks later, as the eye was beginning to shrink and had only qualitative light perception, the vitreous chamber showing gray and yellowish opacities, it was enucleated. The other eye at no time showed signs of sympathetic ophthalmia. The examination of the vitreous by the ultra-microscopic method, with a magnification of 2,400 diameters, showed innumerable swarms of bodies which he calls bacteria, moving actively about in the field. He describes the forms of special interest for the subject as follows: The prevailing form is a long rod, five or six times as long as broad, showing no divisions, although the separate rods showed indications of bends and curves. To some extent these organisms appeared in the form of double rods—that is, each couple moved as one, although there was no visible connection between the two, and their relative positions in the couple were constantly varying. These rods were more than $\frac{1}{4}$ micron long, but in the other diameter were sub-microscopic. Beside these, there were numerous other micro-organisms of ultra-microscopic size (of which, consequently, the shape could not be determined accurately), which Rählmann regards as younger forms of the rods. There is no mention of the examination of the vitreous of an eye which has actually caused sympathetic ophthalmia.

nor of pathologic vitreous resulting from non-infective processes, nor of normal vitreous; and, since the other tissues do not lend themselves to this form of investigation, Rählmann gives no results from examination of the iris, choroid, etc.

The theory which he builds up on this foundation is that sympathetic ophthalmia, instead of being, as hitherto believed, mainly a disease of the iridochoroidal tract, is primarily and chiefly a disease of the vitreous caused by micro-organisms, which in their younger forms are so minute that they pass freely through the walls of the blood vessels with the same ease as do the molecules of albumen. By the blood current they are carried all over the body, but find the conditions essential to their growth only in the vitreous of the other eye. But since it takes a certain time for the smaller forms of these germs to develop, the second eye can not be attacked except after a certain length of time (six weeks) [sic].

The signs of the inflammation which are commonly found in the iris, choroid, optic nerve, etc., are not due to the growth of micro-organisms in these tissues, but to the spread into them of the soluble products of the inflammation of the vitreous. Stress is also laid on the alleged characteristic remissions and exacerbations of sympathetic ophthalmia, as indicating cycles in the growth of the germs in the vitreous. A transmission of the germs by the direct migration through the optic nerve or other tissues of the orbit, Rählmann considers impossible.

In weighing this communication, one is first struck with the readiness with which Rählmann, in the absence of any cultures or inoculations, proclaims the minute bodies which he has observed to be bacteria, and the absence of all control investigation of normal non-infective forms of pathologic vitreous suggests that the wonders of this new method of research have produced a sort of intellectual intoxication, rendering the observer oblivious to the ordinary precautions which should attend such announcements. Regarding the inherent probability of the theory itself, it is opposed to the common experience that the vitreous of eyes which have caused sympathetic ophthalmia are not infrequently found to be practically normal. The reviewer can recall at least three eyes which he has enucleated on account of genuine S. O., in which the vitreous seemed perfectly normal. It would be a strange infection, indeed, which would cause no decided change in the tissue in which the germs grow while the surrounding tissues show the most marked signs of a plastic inflammation.

Altogether, this interesting article suggests a claim sign on a prospect hole.

H. G.

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
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Original Articles.

RETINAL HEMORRHAGE AS THE FIRST MANIFESTATION IN A CASE OF DIABETES.*

C. S. G. NAGEL, M.D.

SAN FRANCISCO.

The case I wish to report is of an exceptional character, insofar as the patient had, for a considerable time past, been and is still feeling unusually well—a grave retinal affection coming upon her insidiously in the meantime. It is well known that there are among the ocular manifestations of diabetes mellitus some that will eventually first arouse suspicion as to the presence of the general disorder, and thus lead to an examination of the urine. Pathognomonic among them is one form of cataract, viz., the typical diabetic cataract of younger years, of silky luster, first appearing closely below the capsule, with well-marked sectors showing, as first described by Foerster; and also, perhaps, Hirschberg's form of central retinitis.

There are no figures available showing in what percentage eye symptoms may appear thus early. In fact, statistics vary considerably as to the frequency of ocular manifestations in diabetes at any stage. First in frequency, no doubt, stands cataract of all forms, not only Foerster's variety above referred to. Next I am inclined to put myopia, suddenly and rapidly developing—not an axial myopia, by the way—and further retrobulbar neuritis. That anomalies of accommodation not infrequently lead the oculist to the discovery of diabetes, I am well aware. However, I am inclined to look upon it as rather accidental if the disease has not been diagnosed before, as in the great majority of cases the lessened power of the ciliary muscle is merely the expression of an already greatly enfeebled constitution, not a toxic paresis. As to whether other ocular symptoms ever play the rôle of a first manifestation at

* Read before the San Francisco County Medical Society, June 12, 1904

all. I can merely give it as my general impression that such is but rarely the case. Leber states directly, regarding retinal affections, that they only come on after years, and that there never had been such a case recorded where at least emaciation and general decline had not been present.

I now beg to give you my case: Mrs. S., aged 73, kindly referred to me over 18 months ago by Dr. Krotoszyner, has had twelve children, has been suffering from occasional attacks of asthma for fully 50 years, but up to lately there had been no other organic or functional disturbances apparent. The woman has always been strong and healthy, and feels so now. She leads a quiet and comfortable life. When first seen by me the patient was suffering from acute inflammatory glaucoma of the left eye, which promptly yielded to iridectomy. The eye has remained well ever since and has improved considerably in vision (i. e., from counting fingers at 1 meter to 5/20). It is worth emphasizing that there had been no abnormal hemorrhagic tendency, either during or after operation.

About five months ago I found a beginning typical narrowing of the field of vision of the fellow eye, which satisfied me that the glaucomatous process had set in there also. There have been no other glaucomatous symptoms up to the present. Central vision in this eye (right) had remained stationary since she had first come under my observation, being fairly good, considering the patient's age and hyperopic astigmatism— $V. = 5/15$ —until about six weeks ago. The patient then, on one of her occasional visits, stated that for the last few weeks she thought her sight failing. This proved to be so for the right eye (not for the operated one). This failing has steadily continued since, until she could, at the last examination, merely see movements of the hands at about 15 cm.

Simultaneously with this diminution of vision, and palpably as the reason thereof, I found the following fundus changes: It is worth stating that the defect in the visual field due to the glaucomatous process is progressing, but very gradually, and remains at present, as already mentioned, the only manifestation of that condition. Around the posterior pole of the bulb in an area of about 3 papilla-breadths, there were a number of small, roundish, pale-red, fresh retinal hemorrhages, not in general lying closely to the vessels, and which latter presented no alterations as to the caliber, blood column, etc. Papilla and vitreous body normal, as was also the rest of the eye. There were no white spots of any kind in the retina.

The patient's urine was hereupon carefully analyzed by Dr. Krotoszyner, who found a fair amount of sugar (0.5 per cent.); and

put the patient under general treatment. The ophthalmoscopic picture has remained essentially the same at subsequent examinations, the lesions gradually increasing in severity, the hemorrhages becoming more numerous, also slightly larger, and the whole area affected extending somewhat. There is also beginning cataract now showing itself.

Though the character of the hemorrhages has nothing absolutely pathognomonic—it is, indeed, more suggestive of diabetes—the absence of white foci of degeneration and the well-defined outline of the disc being rather against the probability of nephritis. Hemorrhages due to local vascular affections, such as thrombosis occurring with arteriosclerosis, present an appearance greatly different.

In conclusion, it is only necessary to emphasize that the glaucoma which has undoubtedly set in has no bearing on the retinal changes. However manifold the pathologic findings have been in primary glaucoma, retinal hemorrhages are not among them. That this might become a hemorrhagic glaucoma—i. e., increase of tension through hemorrhages—is, unfortunately indeed, one of the prognostic shadows of the case.

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A CASE OF FOREIGN BODY WITHIN THE ORBIT. WITH PENETRATION OF THE CRANIAL CAVITY.*

EDWARD P. MORROW, M.D.

Ophthalmologist to Aultman Hospital.

CANTON, OHIO.

(Illustrated.)

This case occurred in the practice of Dr. F. D. Smith of Hartville, Ohio, through whose courtesy I saw the man about 20 hours after the injury.

F. von G., aged 56, farmer and Swiss cheese maker, on the 17th day of February, 1904, while attempting to fire an unused and unclean shotgun, the barrel exploded, shattering the breech and stock, flying portions of which produced the injury described below. When I arrived, I was shown the bent stock bolt seen in the cut. This was removed by some member of the family, who said it was "sticking out of the eye," and was the supposed cause of the injury.

*Reported at the Stark County Medical Society, Sept. 20, 1904.

The severe pain suffered by the patient prevented a thorough examination before anesthesia, but in an effort to examine the injured right eye I found the globe fixed and immovable, the fellow eye moving freely in all directions.

After anesthesia it was found that the brow was torn from its bony attachment, the lid also being torn from the brow two-thirds its length from the inner canthus outward. The nasal bone was fractured and the upper inner rim of the orbit fractured and torn away. Digital exploration of the wound revealed a metallic body, which proved to be the breech of the gun, the screw or larger end presenting forward, the forward extremity being located a little back of the equator of the globe. It was found wedged firmly against the inner wall and roof of the orbit, fixing the eye firmly



Fig. 1.—Weight, 32.2 gm.; extreme length, 43 mm.; extreme width, 26 mm.; extreme thickness, 14 mm. of foreign body from tip to tip.

against the outer wall. Considerable force was required to withdraw the foreign body, and when removed the opening made may truthfully be said to have appeared yawning. Looking to the bottom gave one the impression of looking into the center of the head. No bleeding followed the removal of the foreign body. Part of the nasal bone and the entire orbital plate of the ethmoid were fractured into small bits and were removed with the thumb and finger. The roof of the orbit was found fractured, several plates of bone the size of the thumb nail being removed. Palpation over this area revealed the brain pulsation. It was backward and through the sphenoidal fissure that the cranial cavity was entered by the foreign body. The upper curved surface was in contact with the roof of the orbit, the shank extending backward. The conventional

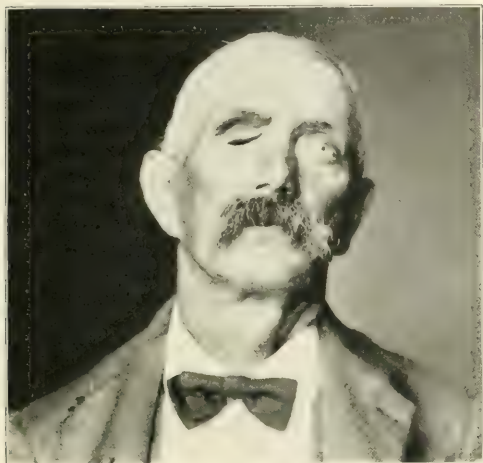


Fig. 2—Showing the attachment of upper lid.

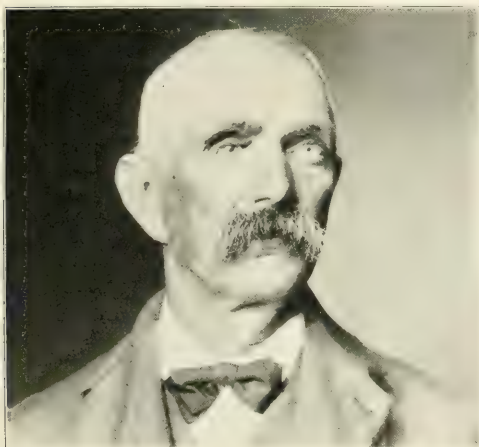


Fig. 3—With artificial eye, showing the perfect cul de sac.

depth of the male orbit is 42 mm. The length of the foreign body is 43 mm. Its forward presentation being back of the equator of the globe, the penetration must have been, at the least calculation, 14 mm. into the middle fossa.

For the purpose of securing better drainage, the globe was enucleated. This was justifiable, inasmuch as the interior of eye was found to be disorganized. While the external coats of the eye withstood this great force and pressure without rupture, the iris, choroid and retina were detached and the lens dislocated. Complete evisceration of the orbit was contemplated, but the result fully justifies the decision not to extend the operation further. Nature had already sealed the vessels, and, with so large an opening, free drainage was maintained. Orbital cellulitis ensued, as was expected. With the exception of a few days of high temperature (one day as high as 104 F.; but it subsided under irrigation and the securing of freer drainage) the recovery was otherwise uneventful.

The credit of this excellent outcome is in large measure due to the watchful and intelligent after-treatment carried out under the direction of Dr. Smith, who had charge of the case following the

ST. LOUIS.

GLAUCOMA OR PRIMARY OPTIC ATROPHY?

J. A. WHITE, M.D.

RICHMOND, VA.

(Illustrated.)

Sometimes we meet with cases simulating glaucoma so closely that I think it is difficult to decide whether they are glaucoma or not. Such is the following case: A gentleman called to see me who had noticed that, in shooting, the vision of his right eye was misty if he threw his head down. I found the vision in the right eye, the best that he could get, was 20/50, and that was when the head was thrown up as he looked at the test card. As he lowered his head the vision gradually decreased until it was about 20/200 with the head well bent forward. The examination of the field showed that the upper part of the field was almost entirely abolished, and there was considerable contraction on the nasal side. The temporal and lower fields were perfect. The anterior chamber was normal and the pupil acted perfectly; there was no dilation, and there was no hypertension. The examination of the fundus showed an excavation of both nerves, which I took to be

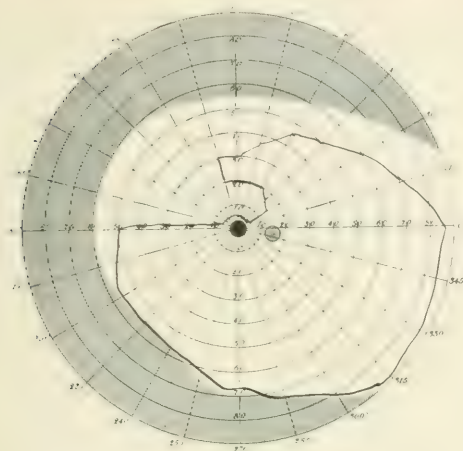


Fig. 1. Field of vision, taken Jan. 22, 1904, of Dr. White's case.

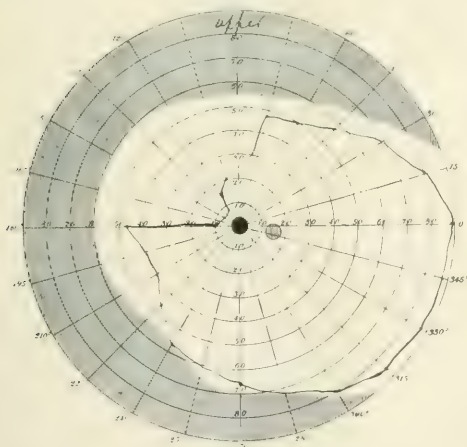


Fig. 2. Field of vision in Dr. White's case, taken Oct. 25, 1904.

physiologic excavations, as they did not involve the whole of the disc, though they were quite large, in view of the fact that the left eye was absolutely normal in every respect in regard to vision, field, and so on. He had been advised to have an iridectomy done, but I thought he had better wait, and I put him upon strychnia and phosphorus, with the result that his vision increased from 20/50 at the best of the field to 20/20, and the misty appearance gradually decreased and his field enlarged. As he was going to New York, I suggested that he consult a prominent ophthalmologist there, and this gentleman wrote me back word that he considered it a case of simple glaucoma, and that I should operate. I explained to my patient that the operation would be followed by deterioration of vision, and that I doubted whether it would give him any improvement whatsoever. But he was perfectly satisfied to have it done under the circumstances, as I told him that beyond mere slight depreciation of vision it would do no harm. I did an iridectomy, perfectly satisfactory as far as appearances go, but the result was that he lost the improvement in the field and vision both, which he had gained under strychnia. The eye looks perfectly well, the media remaining clear; there is no tension and the fundi of both eyes are exactly alike, as they were before, except that there is some slight pallor of the excavated portion of the right disc. He has the mist in the lower part of the field, and the eye is in all respects as it was when I first saw him. Now, was this a form of glaucoma, or one of those defects in the field and vision due to some nerve trouble, the cause of which is difficult of solution? I am inclined to think it was the latter.

A NEW LACHRYMAL SYRINGE.

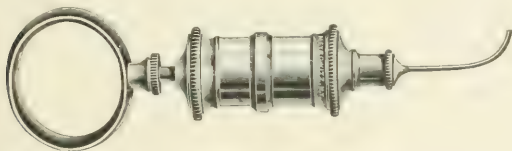
JOHN S. KIRKENDALL, M.D.

ITHACA, N. Y.

(Illustrated.)

For the past few years, having had many cases of tear duct closures to treat, and having become quite dissatisfied with probing for its relief, I have many times resorted to medication by injecting astringents, the best of which has been a 50 per cent. solution of argyrol. After having cleansed the sac with other antiseptic solutions, repeating this bi-weekly, I have found in many cases great relief, which avoided the extirpation of the sac, which is advocated at this time, much to my gratification. In the meantime, I have become very much disgusted with the ordinary lachrymal syringe in use; so on my way to Atlantic City last June I stopped in at E. B.

Meyrowitz's and suggested a modification, and upon this Mr. Meyrowitz and myself planned this syringe, which has met the indications desired, i. e., in contrast to the old, which was too long for convenience of work to be done. Its length prevented the needed rest on the forehead to keep the adjustment of the needle in the



canaliculus constant; hence this short and, I think, better instrument. After arriving at the meeting, in conversation with Dr. S. D. Risley of Philadelphia, I found that he had also been considering a similar change, but I think quite unlike the above in length of both needle and barrel, hence do not feel that I am infringing upon his rights in presenting this to the profession.

ECTROPION RELIEVED BY EXCISION OF THE TARSI. REPORT OF A CASE.

THOS. FAITH, M.D.

Professor of Ophthalmology in Chicago Eye, Ear, Nose and Throat College;
Oculist and Aurist to St. Anthony's Hospital.

CHICAGO.

As ectropion, particularly of the upper lid, is a rather difficult condition to correct, a report of the following case will, I think, be found of considerable interest.

I was consulted on Sept. 10, 1901, by H. B., male, age 34, who gave the following history:

Three weeks previously he was struck over the left side of the forehead and face with a piece of hard wood in the hands of a workman, with whom he had quarreled.

He was rendered unconscious by the blow, and was taken to a neighboring hospital, where his injuries were cared for. He returned home the following morning and received no further medical attention.

Upon examination I found a wound in the left upper eyelid, beginning at the lid border, at about the junction of the middle with the inner third, and extending upward and inward to near the inner end of the left brow. This wound had completely di-

vided the lid, but had been united with sutures, two of which remained in position, the lower one about 6 mm. from the lid margin, the upper one about 10 mm.

As a result either of incomplete approximation or of sloughing out of some of the sutures, the union of the wound margins was incomplete and there was a marked notch at the lid margin, as well as an opening about 6 mm. long which communicated with the cul-du-sac, and through which an instrument $2\frac{1}{2}$ mm. in diameter could easily be passed.

There was considerable swelling of the cellular tissues of the orbit, a traumatic cataract and iridodialysis.

Hot applications, boric flushings and atropin were ordered. On October 1 the eye had become quiet and the cellulitis had subsided. As the cellulitis subsided the lid began to turn out, and by October 15 was completely everted.

On October 30, everything being quiet, an operation for the correction of the ectropion was attempted. The Adams operation was modified to suit the location, the triangular wedge removed from the lid being made to include the scar caused by the injury. All deep cicatrices were divided subcutaneously, and the wound was closed by hare-lip pins.

The immediate result was entirely satisfactory, but at the end of three weeks the ectropion was as pronounced as before the operation was attempted.

In looking about for some cause other than the scar which might be a factor in causing the condition, I noticed that the skin of the upper lid was somewhat tense toward the outer extremity, particularly when the lid was forcibly replaced in the natural position. This I thought might cause the ectropion by pressure, in the same manner as does spasm of the orbicularis.

Accordingly, on December 16, I attempted correction of this condition by doing a rather extensive canthoplasty, and by making an incision through the skin of the outer part of the upper lid, beginning about 5 mm. above and inward from the outer canthus and extending upward and outward about 15 mm. The edges of this incision were undermined, and it was brought together by sutures placed in the same direction as the line of incision, the object being to loosen the skin of the upper lid and relieve the tension on the upper part of the tarsus. As the lid border had been shortened by the Adams operation, and as no deep scars could be found, nothing further was done at this time.

This operation, like the preceding one, gave only temporary relief from the ectropion, and after watching the case for some

time, I came to the conclusion that the enlarged tarsus was the only remaining cause which had not been removed.

I therefore decided to remove this structure, and on March 12, 1902, under chloroform anesthesia, the tarsal cartilage was completely removed, with the exception of a small strip about 1 mm. wide along the lid border. The conjunctiva was saved as much as possible, but no sutures were introduced.

There was very little reaction; the wound healed readily, and to the gratification of both the patient and myself, the ectropion was corrected.

I saw the patient last in September, 1903, just about eighteen months after the operation, and there was no evidence of return of the condition.

We are all aware that lacerated wounds of the lids, particularly if they are not coapted skillfully, or if sloughing takes place, are likely to result in eversion.

Dr. George C. Harlan¹ says the everted lid always becomes more or less elongated by relaxation, stretching or inflammatory hypertrophy, and the continued eversion tends to increased hypertrophy, the result of irritation from exposure.

Hotz² mentions the shortening of the lid border as one of the problems to be met in all cases of cicatricial ectropion. This, he thinks, is best accomplished by removing a triangular section from either the tarsus or the entire thickness of the lid near the external canthus.

Fukula³ advised the removal of all ectropinized parts, i. e., conjunctiva and cartilage, particularly in senile ectropion.

Prince,⁴ after an experience of fifteen years with the method, advised the complete removal of the tarsus without the conjunctiva in all cases of senile ectropion, and his method of removal seems to me a very rational one, which I quote from his description in a paper in the *American Journal of Ophthalmology*, May, 1898, viz.:

"Make an incision through the conjunctiva and tarsus parallel to and about 1 mm. removed from the opening of the meibomian ducts, carrying the incision the whole length of the palpebral aperture. From the middle portion of the tarsus separate the conjunctiva for a few mm., after which divide the tarsus and grasp each free end in turn and dissect it out to its extreme limits.

1. Harlan, G. C.: Article on Diseases of Lids, in Norris and Oliver's System of Diseases of the Eye.

2. Hotz, F. C.: Operations on Eyelids. American Text-book of Ophthalmology.

3. Fukala: Annales d'Oculistique, January, 1894.

4. Prince, A. E.: American Journal of Ophthalmology, May, 1898.

care being taken not to excise any conjunctival tissue. The dissection is best made with the Stevens tenotomy scissors. No sutures are found necessary."

Of course, the above case was not one of senile ectropion, but it presented some of the same features presented in senile ectropion, i. e., hypertrophy of the conjunctiva and tarsus, and they were eliminated by the same measures which Fukala and Prince advise in that condition.

One case, to be sure, is not sufficient to draw extensive conclusions from, and I would not advocate the removal of the tarsus in every case of ectropion, though I believe after the above experience that in many of the cases of cicatricial ectropion complete removal of the tarsus as a part of the operative procedure would be of much advantage.

I do not mean, of course, to include in this the cases of long-standing ectropion, where the hypertrophic process has been succeeded by one of atrophy.

A FEW WORDS REGARDING THE "TUCKING" OPERATION ON THE RECTI MUSCLES.

FRANCIS VALK, M.D.

NEW YORK.

It is to be regretted that Dr. J. E. Colburn, in his letter published in the OPTHALMIC RECORD of July, 1904, should have closed his remarks in this way: "Regarding the value of the operation (shortening) it is subject to the law of 'the survival of the fittest,' for the reason that this conclusion simply tells us nothing as to the actual value of an operation, which, according to the doctor's letter, seems to have been the results of his own investigations. From this letter it would seem to me as if Dr. Colburn were the originator of the method of shortening or "tucking" the ocular muscles in heterophoria or heterotropia as early as 1886, much earlier than Dr. Savage's editorial was written or my own full report in 1895. Accepting this letter as Dr. Colburn's statement of his experience in the operation of shortening the ocular muscles, it is unfortunate that his remarks at Cincinnati, 1888, were not published, as then we would have had the question settled as to the priority of the operation and which would give it a proper name and a place in ophthalmic surgery. When Dr. Savage called my attention to his editorial, I gladly resigned all claims to being the originator of this procedure, at the same

time I must state that my article, published in the Post-Graduate, July, 1895, was the first paper that gave a full description of the method of tucking or shortening the ocular muscles, and, as my method of operating, of placing and using the cat-gut suture, and the after treatment, was decidedly different from that of Dr. Savage or of Dr. Colburn, I may perhaps claim some originality in the method.

But these remarks are not intended to make any special claim in this matter; they are simply to ask, when shall we decide the time for "the survival of the fittest" has arrived? Must we wait one or two decades or until the present generation has passed away and the younger ophthalmologist may find some merit in the work of the men to-day. These are surely interesting questions at least, and it seems to me a procedure that has been performed now more than ten years or, according to Dr. Colburn, more than seventeen years, which *still survives*, and has two or three claimants for its origin, must have some merits and now might be classed as one of the "fittest."

Now, perhaps it may be that no operation can be considered as fully established until it has received the full approval of the profession, but, unfortunately, there seems to be a difficulty among ophthalmologists about accepting any one method of operation on the eye and its appendages. As I understand it, the general surgeons seem to have fixed methods in nearly all their operations upon other parts of the body, that can be followed by the younger members of the profession, but when we examine the subject of ophthalmic surgery each one seems to have some special method of his own. (I am not an exception.) The best operation for cataract has never been decided upon nor has the best operation for strabismus been settled, and yet, the vast experience of others should have fully demonstrated what is the best procedure in these cases. I am led to these remarks as I read Dr. Colburn's letter and also by reading the discussion of Dr. Todd's paper at the last meeting of the American Medical Association at Atlantic City in June. During that discussion, in which some eight ophthalmic surgeons took part, on Dr. Todd's paper on the shortening of the ocular muscles, only one surgeon seemed to give it his approval, while all the rest of the speakers did not approve of nor use the method in their operations. One speaker stated that he thought the operation was "theoretically imperfect." Now if all these ophthalmic surgeons cannot approve of a method of operation for the shortening of the ocular muscles there must be some fault or some want of judgment, yet, where is it? Dr. Savage claims

to have performed many hundreds of these operations with continued success for more than ten years. Dr. Todd claims "ease and exactness," while in my own experience, having performed the operation about four hundred times, securing success where all other means have failed and without a single untoward symptom, I must conclude that the operation has some merit and that the statement as to its being "theoretically imperfect" must be theory only and not based on any actual facts or experience.

I ask no man to follow my method nor to attach any weight to my opinion, but in my own mind and because of my experience in the past ten years with the operation of "tucking" the ocular muscles in heterophoria and in heterotropia, I am convinced that the operation has come into the domain of ophthalmic surgery and that it has come to stay. It has stood the test of experience; it has proved itself a useful procedure; it is an "advancement in ophthalmic surgery" and finally, that it is now the "fittest" operation for all cases of heterophoria and an exceedingly valuable one in all the possible deviations of the visual lines.

AN INVESTIGATION OF THE BLIND DEPARTMENT OF THE CHICAGO PUBLIC SCHOOL SYSTEM.

J. F. CAMPBELL, M.D.

CHICAGO.

This system is, so far as I know, original with Chicago and consists in the education of blind children in the same classes and under the same teachers as the pupils who possess good vision.

The instruction is imparted in three schools in different parts of the city. On the South Side instruction is given at the Felsenthal School, Calumet avenue, near Forty-second street. On the West Side at the Clark school, Thirteenth street and Ashland avenue, and on the North Side at the Adams school, Townsend street, near Chicago avenue.

The system originated in the determination of the Board of Education to erect a building for the education of the blind children of this city. Professor Frank H. Hall appeared before the Board and advised, with others, the adoption of the system. The result was that four years ago a start was made with thirteen children under the superintendence of Mr. Curtis, Superintendent of the Department, who is himself blind and received his education under Professor Hall when superintendent of Jacksonville Blind Asylum. Mr. Curtis's duties are to supervise the

printing of all books and maps and other aids to impaired sight, to visit the schools, and to instruct the special teachers who supervise and assist the children outside of the usual classes.

The reading and writing is that known as the Braille French System adapted to American needs. There are six dots used which by their different position and combination, make up the alphabet. Maps are constructed on a similar basis, using various dots and lines to represent rivers, cities, etc. All the printing is done at the Felsenthal school from thin brass plates that receive impressions from machines invented by Professor Hall.

There are 28 children in all receiving this form of instruction, seven on the South Side, twelve on the West Side and nine on the North Side.

The blind child enters the school, learns the alphabet and system of reading from a special teacher, who always assists the child and enables him to keep pace with other children. He is then assigned to his or her proper class in the school and takes part in all the ordinary school exercises, using specially printed books and maps which are identical in matter with the other books. The child reads with the tips of the fore and middle finger traveling across the page and uses the tip of the left fore finger to keep the line. They are thus ready to read without hesitation when their time comes. Writing is done by means of a style leaving a dot impression on thickened paper, a slate of steel with interspaces guiding them in placing the dots.

No formality is required to secure admission to the classes by blind children, although some with congenital cataract and accompanying mental defects have been found unsuitable pupils and referred to the State School for the Blind at Jacksonville.

The nearest approach to this new departure in the education of the blind is found in London, where children are instructed in a room all together; they do not participate in the general classes.

The teaching of blind children in the public schools with other children was mainly undertaken because of several defects, dangers and objectionable features in the institutional training inherent in our public asylums. If the blind boy or girl is to obtain the benefits that accrue to association with children that are capable of good sight, if they are not to be set apart as something different from other members of the community they ought, as far as possible, to ignore this misfortune and go about as if they see. Javal gives us the same advice in his book *Entre Aveugles*; the Chicago idea is simply putting into practice the suggestions of this blind ophthalmologist.

As evidence of the value and practicability of the scheme I subjoin the following brief histories of a few blind pupils now receiving regular instruction, with other girls and boys having good vision in the various classes of the public schools.

On May 24th, 1904, I visited the Felsenthal school and found under instruction six boys and one girl, as follows: No. 1, Norman C. Age, 9 years and 10 months. Blind since birth. No L. P. Healthy boy and very energetic. The youngest pupil of the lower 5th grade.

Case No. 2. H. Johnson, age 12, Sixth grade. Blind since fifth year. Result of accident. Has been in department four years. He keeps well up with boys and girls of his own age, having a brother older than himself in the same class.

Case No. 3. F. H., age 6 years. Blind, result of ophthalmia neonatorum. Right eye shrunken. Left staphylomatous. No L. P. In school since Nov. 4, 1903. He is in the second grade.

Case No. 4. M. N., age 9 years. In school four years; now in third grade. Blind since birth. Eyes sunken.

Case No. 5. R. J., age 9 years. In school one year and three months; now in second grade. Has defective hearing and teeth. Said to have had cerebrospinal meningitis and cataract. Can distinguish objects like pencil at a quarter meter. Eyes very small; nystagmus.

Case No. 6. E. L., age 14 years; now in third grade. At school 25 months. Said to have been blind since birth. Cornea slightly hazy and pupil contracted; nystagmus. Tall and somewhat delicate with left scoliosis. Could count fingers at half a meter.

Case No. 7. B. P., age 11; now in third grade. Has vision of 4/200th. Blind as result of ophthalmia neonatorum. Admitted to the blind department only two or three days before and is now able to read or write alphabet and simple words and was transferred to this department as it was thought she would succeed better with such instruction.

On Thursday, May 26th, 1904, I visited the Clarke school, Ashland avenue and Thirteenth street, and found twelve children in the blind department under the management of Miss George as the special teacher. The children in this school are more mature than those in the Felsenthal school, ranging in age from 8 to 21, and the proportion of boys to girls is as two to one. I find that the children show the same proficiency as in the other school.

Case No. 1. F. R., age 8. Now in third grade and has been in the school two years. Both corneæ destroyed; said to have re-

sulted from scarlet fever, or diphtheria, at the age of four. This young boy is exceptionally bright and well nourished. Said to have light perception.

Case No. 2. A. F., age 9. Sight defective since birth. Scholar in the second grade. In blind department three months. Both corneæ bulging. Left cornea has some opacities; right clear. Coloboma of right iris upper and outer quadrant, result of operation. Patient can count fingers at one meter and distinguish large type with right eye.

Case No. 3. P. M., age 11. This pupil is a foundling, blind from birth; due to ophthalmia neonatorum. Not at school during my visit.

Case No. 4. Eddie S., age 11. This young pupil is in the second grade and is now in his third year at school. Is delicate and poorly nourished. Both corneæ are destroyed. Left eye shrunk. Ophthalmia neonatorum.

Case No. 5. Otto D., age 12. Pupil in fifth grade and one of the original pupils. Blind from birth. Left eye shrunk. Cornea destroyed. Right eye staphylomatous. Has slight light perception. Said to be result of ophthalmia neonatorum.

Case No. 6. Katie McG. Blind since tenth year. Result of some acute illness. Not present at school at time of visit. Said to have light perception.

Case No. 7. J. S., age 14. Blind since fourth year. Said to be result of smallpox. Right eye shrunk. Left cornea bulging.

Case No. 8. Richard B., age 15. This young boy is in the eighth grade and is quite bright. He has exceptional musical talent and plays the piano for the school exercises. Cause of blindness not determined. Said to be cataract, developing at eleventh year. One eye operated on with resultant total blindness of that eye.

Case No. 9. E. V., age 16. Pupil in eighth grade. Blind since seventh year. Result of accident. Struck in the left eye by spinning top destroying sight. Right eye became blind from sympathetic ophthalmia.

Case No. 10. S. B., age 16. Large, healthy young girl. Pupil of the eighth grade. Blind since birth. (Has two brothers blind.) Eyes look natural with dilated pupils. Has light perception.

Case No. 11. E. McG., age 18. This is a young colored man, healthy in appearance. He attended the Hayes school as an ordinary pupil for six years. Was then out of school three years, as his sight made it impossible to pursue his studies. Entered the

blind department three and one-half years ago and has reached the seventh grade and is doing well. Dates his blind condition from measles at two years. He had left divergent strabismus corrected by operation. Presumably a high myope. Counts fingers at one-fifth meter with right eye. Left eye blind.

Case No. 12. J. D., age 21. In school third year and has reached grade three. Blind since fourth year; result of accident to left eye and sympathetic ophthalmia in right. Left eye shrunken. Both corneæ degenerated. Has light perception in right eye. Able to find his way around.

I found that most of the pupils following Mr. Curtis' plan use the tips of the fore fingers of either hand in reading. The slate used for writing is made of four folded thin steel plates, the upper portion containing thirty-one spaces across and four deep, and the lower portion having opposite each space six concave impressions to receive the end of the style. The paper is placed between the two parts and the printing is from right to left.

On Tuesday, May 29th, 1904, I visited the J. Q. Adams school on Townsend street, near Chicago avenue, and found seven pupils in the blind department under the special instruction of Miss Baker. These pupils, with two exceptions, have not been assigned to special classes and are devoting their whole time to preliminary work under the special teacher's supervision. The following are some items of interest about the individual cases:

Case No. 1. H. H., age 8 years. This young girl had a fall on her head at the age of 15 months and became totally blind, but recently has shown some improvement. She had been trephined and some clotted blood removed. She is a well developed child of happy disposition. Both corneæ are clear; left external strabismus; distinguishes near objects. In school since September, 1903.

Case No. 2. Nellie C., age 9 years. In beginner's class. Has been in school one year. Nervous child, but improving in general health and gaining confidence in her ability. Has tubercular scars on the neck. Condition of eyes: Both corneæ leucomatous; nystagmus. Vision, light perception.

Case No. 3. Lillian McD., age 7 years. In school since September, 1903. In beginner's class. A delicate child, nervous temperament. Of tubercular tendency. This child, although gaining confidence in going around and in playing with the others, is not accomplishing anything and has not learned the alphabet. Condition of eyes: Both corneæ staphylomatous and degenerated. Cause of trouble, ophthalmia neonatorum.

Case No. 4. Harry O'N., age 10 years. In this department for two years and assigned to third grade in general class. Spent some time at a Brothers' school, but accomplished nothing. He is now progressing splendidly, and is a bright healthy boy. Condition of eyes: Both eyes shrunken to half natural size. Left eye has no light perception. Right eye distinguishes objects at twenty inches and is able to distinguish color. Has a purulent conjunctivitis at present. Cause of trouble, ophthalmia neonatorum.

Case No. 5. Andrew O'D., age 16. In school four years in this department. Formerly went to Goethe school as an ordinary scholar between the ages of 7 and 8. He is a pupil in the fifth grade and is progressing well. Cause of trouble is presumed to be optic atrophy following neuritis after typhoid fever. Pupils dilated. Has light perception and some slight peripheral vision.

Case No. 6. Alexander S., age 17. A tall, healthy boy in the eighth grade. Formerly had some private instruction. Has dilated pupils, right more than left. Typhoid at six years of age, followed by defective vision. Counts fingers at one-third meter.

Case No. 7. Amy B., age 11. In blind department but a few months. Formerly had instruction from a governess. She is now in the beginner's department and is progressing well. She is a healthy, vigorous child. Vision: Can distinguish large objects at short distance. Had an optical iridectomy in right eye up and in. Cause of blindness, ophthalmia neonatorum. This little girl was not at school the day I visited.

The following notes were given me by Mr. John A. Curtis relative to the high school pupils:

Case No. 1. Edith G., age 17. This young lady had private instruction and entered the blind department in the fifth grade and passed through the other four grades in three years. She has no light perception. Probable cause of blindness, ophthalmia neonatorum.

Case No. 2. Pearl M. Now a pupil at the Lake View High school. She graduated at Jacksonville and entered the high school here without passing through any of the preliminary grades. She has some light perception. Cause of blindness, ophthalmia neonatorum.

In addition to the State Asylum for the Blind, with 250 inmates, there is in Chicago an Industrial Home with 100 pupils. No literary instruction is imparted there; the blind are merely taught

the making of brooms and brushes. It was originally intended that it should be self-supporting, but it requires an appropriation of about \$2,500 annually. It is located on West Nineteenth street.

I am much indebted to Superintendent Cooley, Mr. Curtis and the special teachers for their many courtesies in connection with this investigation of their meritorious work.

Abstracts from Recent Ophthalmic Literature.

EDWARD ADAMS SHUMWAY, M.D.

PHILADELPHIA.

An Unusual Case of Unilateral Partial Fugacious Amaurosis.—Wolffberg (*Woch. f. Ther. u. Hyg. des Auges.*, April 1, 1904) describes a case of unilateral fugacious amaurosis in a medical colleague which recurred a number of times after smoking a heavy cigar following a heavy meal. The right eye showed an absolute central scotoma, which left only a peripheral zone of 15° to 20° free. Within the scotoma light could not be perceived. The left eye was entirely unaffected. Except for a distinct reddish, violet-like appearance of the nerve-head, the eye showed no change, and the medical examination was absolutely negative. The attacks disappeared each time after two or three minutes, and were not followed by migraine. The treatment consisted in abstinence from tobacco and alcohol, and the attacks did not reappear. Wolffberg considered the tobacco to be the cause of the attacks, but did not think that the condition was an acute tobacco intoxication, but that tobacco must be placed in the list of insults which may produce fugacious amaurosis ("*Flimmerskotom*"). He believes that the affection is called forth (perhaps only in neuropathically predisposed individuals) when the eyes are strained directly after partaking of a meal which is difficult of digestion, or when the digestive process is disturbed by some intercurrent accident (mental excitement or smoking strong cigars); simple reading may be sufficient, especially in a bright light, also dazzling by sunlight. In such cases Wolffberg regulates the diet (stops the tobacco), directs the patient to wear a gray glass, and to allow at least half an hour to elapse after a heavy meal before using the eyes. Validol (Neustätter) or valyl, or potassium bromid may also be prescribed.

Fly Larva in the Eyeball.—Ewetzky presented a unique case of the presence of a fly larva in the anterior chamber, before a meeting of the St. Petersburg Academy of Natural Scientists. The patient was a child $5\frac{1}{2}$ years of age, who came for treatment because of pain and disturbance of sight. In the anterior chamber of the eye directly back of the cornea, a grayish worm about 7 mm. long could be seen. No movements were detected, but it was found that the parasite could slowly change its position in the eye.

The worm was removed by operation, and proved to be a fly larva, although the species could not be determined. Considerable discussion arose as to the way by which the larva penetrated the eye—whether the fly in laying the egg had perforated the cornea, or whether the larva itself had bored its way in. (*Woch. f. Ther. u. Hyg. des Auges.*, April 28, 1904.)

Treatment of Lead Incrustation of the Cornea.—According to Schiele (*Woch. f. Ther. u. Hyg. des Auges.*, May, 19, 1904), the incrustation of the corneal tissue by lead, as the result of the use of solutions of lead acetate in the treatment of corneal ulcer, may be removed by the application of potassium iodid and iodic acid. The lead is present either as insoluble albuminate, sulphate, phosphate or carbonate, or a mixture of these salts. By the use of the iodine preparations, all of these salts, except the carbonate, are converted into lead iodate, which is dissolved in an excess of the iodine solutions. Schiele applies a 3 to 5 per cent. solution of potassium iodid to the cornea by a piece of cotton, and then a 3 to 5 per cent. solution of iodic acid. Nascent iodine is formed, which causes the leucocytes to assemble and separate the healthy from the diseased tissue, so that the lead salts are removed by an action partly mechanical and partly chemical. He reports two cases of fresh incrustation in which the cornea was cleared entirely of the white stain, but he is not certain whether old corneal scars with lead incrustation would be influenced in the same way. In such a case the surface should be curetted first with a sharp spoon, so that the iodine could penetrate more thoroughly.

Comparative Lesions of the Retina and of Other Organs in Patients Affected With Albuminuric Retinites.—Opin and Rochon-Duvigneaud (*Arch. d'Ophthal.*, March, 1904) have made a study of the changes in the eyeballs, and in the other organs of the body in five cases of Bright's disease, with the following results: In the choroid the vascular lesions are always more constant than in the retina. They attack principally the arteries without, however, sparing the veins, and vary from simple narrowing by endovascularitis to obliteration and atrophy of the vessel. Interstitial hemorrhages are often seen, but rarely lesions of the choroidal connective tissue. The pigment epithelium is often altered. The retinal lesions are generally localized at the posterior pole of the eye, and have their chief seat in the internal layers, although the entire retina, including the rods and cones, may be invaded. The most apparent changes are always edema, hemorrhages and fibrinous infiltration. The alterations of the essential elements of the

retina (such as swelling of the nervous fibers) are not generally destructive, as the visual acuity is good in many cases, in spite of extensive ophthalmoscopic lesions, and when lowered may return to normal, if the condition improves. The fatty degenerative changes are of little importance, and appear in the form of fatty granules at the base of Müller's fibers, and of fatty cells which seem to move toward the external layers of the retina. Certain elements, notably the bodies of the visual cells, may increase in length. There is no multiplication of normal elements nor invasion with migratory elements, such as leucocytes, as in frank inflammations. The vascular lesions are less frequent than in the choroid, but on account of the relative vascular poverty of the retina, and the fact that the vessels are terminal in character, the lesions have more influence upon the retinal tissue than those in the choroid. The authors believe, however, that the vascular lesions can not explain all the alterations in the nervous tissue, as they are not constant and not sufficiently intense or extended. Moreover, the retinal lesions do not seem to be the consequences of a simple ischemia, either as regards localization or character. Although their observations were too few in number to permit definite conclusions, they found the only organs affected to be the kidney, the eye and the heart. The optic nerve presents only secondary degeneration of those of its axis cylinders whose ganglion cells are destroyed in the retina. In only one case were there widespread changes, and here they had not produced parenchymatous changes in the other organs. Finally, the retinitis can not be considered as a simple Bright's edema, as the patients rarely have a general edema, and it is more fixed and less susceptible to medication.

Two theories have been formulated as to the pathogenesis of albuminuric retinitis: 1. That which considers the retinitis a concomitant lesion, independent of the nephritis, resulting from a general cause common to both; in other words, generalized vascular lesions which cause at the same time the nephritis and the retinitis. 2. The hypothesis which makes the retinitis dependent on the nephritis, which conforms better to clinical evidence. No clinical fact can be produced in favor of the first, and in no case has the retinitis preceded the nephritis. On the contrary, the evolution of retinitis during pregnancy shows well the subordination of the retinal lesion to the renal, for the natural or induced accouchement usually exercises a most favorable influence upon it. Finally, it would be difficult to understand why generalized vascular lesions should not cause trouble in other organs, especially

in the brain, where the arteries are terminal. The second hypothesis has in its favor all the clinical arguments which have been mentioned against the doctrine of the parallelism of the two lesions. The nature of the connection between the retinitis and nephritis is still hypothetical, but whatever the nature of the toxic elements retained in the blood in chronic uremia, the changes in the retina must be due to its excessive vulnerability toward these alterations in the circulating blood.

Concerning Glioma of the Retina. Professor Hirschberg (*Centralbl. f. prakt. Augenheilk.*, April 1904) has enucleated the eye in 17 cases of glioma of the retina. In 10 of these cases anatomic examination showed that the growth was still confined to the retina, and no recurrence took place in any of them. In the second group of 7, recurrence was known to have taken place in 4. In the first group the operation was done seven times not later than ten weeks after the white reflex was observed in the pupil. In the second group this time varied between several months and sixteen months. He draws the conclusion, therefore, that operative interference has a favorable prognosis only when the tumor has not passed the limits of the retina, and when the time elapsing since the first appearance of the white reflex has not exceeded ten weeks. He does not refuse to operate, however, at a later period, as successful cases have been reported under such circumstances, and in any case the child is spared the pain which precedes the perforation of the eyeball by the growing tumor. He reports a case in which operation was delayed over four months, but in which the anatomic examination showed freedom of the nerve from glioma, so that a hopeful prognosis could be given.

Gradual Disappearance of Persistent Pupillary Membranes.—The gradual absorption of a pupillary membrane was noted by Beer in 1817, but it is rarely mentioned by modern writers. Hirschberg (*Centralbl. f. prakt. Augenheilk.*, April, 1904) reports a case first seen at 2 years of age, in which the pupillary membrane was composed of a number of strands running from above and below, which in the course of eighteen years were gradually absorbed, until only a delicate remnant was left, which covered the lateral third of the pupil. The condition was complicated by coloboma of the choroid, and, as occasionally happens, was accompanied by progressive shrinking of the vitreous, and resulted in blindness from detachment of the retina.

Adult Neuroglia Tumors of the Optic Nerve and of the Retina.

The greater number of tumors of the optic nerve hitherto described have been placed in the group of myxosarcomas; primary glioma is rarely mentioned. Sourdille (*Archives d'Ophth.*, February, 1904) describes a soft, pear-shaped encapsulated growth of the optic nerve, extending from the eyeball into the optic canal, 3 centimeters long and 2 centimeters wide. The optic nerve was destroyed, and the growth proved, microscopically, to consist essentially of very fine fibrils, either grouped in bundles or in the form of a reticulum, embedded in a large amount of albuminous cement substance. Between them, or where they crossed, were small round or oval cells. The tumor contained many cavities, filled by an albuminous substance, in which were embedded larger polymorphous cells, having one or two short processes which resembled bipolar nerve cells. The appearance recalled that of the usual myxosarcoma, but the albuminous substances did not give the chemical reaction for mucin, and the fibrils, when stained by Weigert's neuroglial stain, proved to be neuroglial in origin. Sourdille, therefore, makes the diagnosis of glioma of the nerve, and would make a distinction between these fibrillary, comparatively benign growths of the optic nerve, to which he gives the name "adult gliomas," and the malignant, cellular tumors of the retina, the ordinary glioma, to which he gives the name of "embryonal gliomas," a distinction comparable to that between the two forms of connective tissue growths, fibroma and sarcoma. The majority of the retinal tumors are embryonal in type, but he describes one which contained a dense reticulum of fibrils, in the meshes of which large round cells were embedded, in which the neuroglial stain was positive. In other words, he believes he has found a hitherto undescribed form of adult glioma of the retina. From a review of the literature, Sourdille is inclined to believe that the majority of tumors of the optic nerve, described under the names of myxosarcoma, fibromyxomas, fascicular myxomas, etc., are in reality purely and simply adult gliomas.

Tubercular Iritis and Its Treatment.

Abadie (*Archives d'Ophth.*, March, 1904) reports four cases of tubercular iritis, in which inunctions and subcutaneous injections of mercury had been tried unsuccessfully, which were cured by inunctions of cod liver oil, containing guaiacol, the administration internally of iodogenol (an organic compound containing iodine, which is usually better borne than other iodine preparations) and of carnin (Lefrançois), a meat extract. Abadie is uncertain which part of the treatment was the

most effectual, but believes that the prognosis of tubercular iritis, especially when it can be treated early, is not as grave as is usually stated, and that enucleation should not be performed except in extreme cases, when the eye has been completely disorganized.

An Unusual Corneal Injury.—Ulbrich (*Klin. Monatsbl.*, March, 1904) reports a case in which a young man, 23 years old, in falling, struck his eye with a dull knife which he held in his hand. There was a curved wound of the cornea, below which proved to be the lower edge of a large flap that included almost the entire surface of the cornea, so that the cornea was divided into two layers. The cut became deeper above, so that the anterior layer was thicker at this position, but it did not penetrate into the anterior chamber. The edges of the wound were slightly swollen and infiltrated, there was severe pain, and vision equalled counting of fingers. The flap became somewhat opaque in the next few days, but healed firmly and regained its transparency almost completely, allowed a vision of 6/20. The case is interesting not only on account of its rarity, but because of the good vision obtained.

Report on New Remedies Used in Ophthalmology.—E. Merck's *Jahresberichte* for 1903 gives the following notes on drugs, which are of interest to ophthalmologists (*Rev. in Woch. f. Ther. u. Hyg. des Aug.*, April 21, 1904):

Acain in the following solution: acain, 0.025; cocain, 0.05; sol. sod. chlorid, 0.75 ad. 5.0, is recommended by Kraus (*Münch. Med. Wochenschr.*, 1903, p. 1459) as an anesthetic for operations on the skin, the eye muscles, the lachrymal apparatus and conjunctiva, in enucleations, strabotomies, even in children (1½ Pravaz syringe injected in the region of the muscle) in operations for chalazia, trachoma, etc. If bleeding becomes annoying, add two or three drops of adrenalin solution, 1/1,000 to the injection, but the solution must be fresh and not older than three or four days. In operating, four injections, each 2 c.c., are made around the field of operation at a distance of 1 cm. The action is prompt and causes no swelling.

Airol is recommended in Italy in the treatment of hypopyon and also in interstitial keratitis, keratoconjunctivitis and in central staphyloea. In sympathetic episcleritis and croupous conjunctivitis recovery is said to have occurred by its use in a few days. The burning which it produces is lessened by cocain.—(*Gazetta degli ospedali e delle cliniche*, 1903, No. 11.)

Alsol, patented name for aluminium aceticotarbaricum, 50 per cent. solution, is used for compresses in 5 per cent. strength, one

teaspoonful to a cup of boiled water. It is said to have the advantage over boric acid and sublimate solutions of not causing eczema of the lids. It is, therefore, especially valuable for compresses in blenorrhea neonatorum, in conjunctivitides, granular and serofular ophthalmias, and, in warm solution, in chronic cases, also in hordeolosis, in corneal ulcers and iritis, but in such cases in solutions of 1:500 and 1:1,000.—Pick (*Therapeut. Monatshefte*, 1903, p. 349).

Argentum Aceticum has been recommended by Zweifel and Seipiades in 1 per cent. aqueous solution, as a prophylactic against blenorrhea neonatorum.—(*Deutsche Medizinzeitung*, 1903, p. 222.)

Argentum Collodale, coliatargol, is prepared in an improved form by Merck, soluble in 20 parts of water. It has been used by Wolffberg and others in blenorrhea neonatorum and mesokeratitis, with good results.—(*Wochenschr. f. Ther. u. Hyg. des Auges.*, 1902, No. 50.)

Argentum Fluoratum is said to be equally efficacious in the same diseases in 1/5,000 aqueous solution.

Methylatropinum Bromatum (0.003; aq. destillat.; hydrarg. oxid. flav. 0.2, lanolin 10.0) acts favorably, according to Aronheim, in conjunctival catarrh and in corneal infiltration.

Brucein is praised by Russian authors in the treatment of amblyopia and retrobulbar neuritis, in the form of subcutaneous injections in the temple or arm, in doses of 0.005 to 0.02 daily, or every other day. The remedy acts as a vasodilator; in acute retinitis it is contraindicated.

Kuprol, copper nucleid, in 5 per cent. solution, has bactericidal properties, and may be used in simple catarrhal conjunctivitis, trachoma with pannus, in powder form, or 5 per cent. solution, or salve.

Cuprum Citricum (Cuprocitrol), recommended by v. Arlt in 5 per cent. salve for trachoma, and confirmed by Bock and others. The cuprocitrol pencil may also be used for pannus, although the remedy was without effect in 35.2 per cent. of the cases collected by Kroton.

Dionin.—Concerning this remedy, it should be mentioned that Fuchs recommended it instead of cocain in painful cases of keratitis, episcleritis and inflammations of the uveal tract.

Eumydrin (atropinum methylonitricum, methylatropinum nitrate).—It is said to be 50 times less poisonous than atropin sulphate, but to possess the same peripheral action. Goldmann found, however, that its mydriatic action was 10 times less. Lindenmeyer reports in the *Berliner klin. Wochenschr.*, 1903, No. 47, that in weak solu-

tions it ranks between 10 per cent. homatropin and atropin solutions, and could replace the latter in the presence of an idiosyncrasy against this drug.

Hermophenol, Merck, 1902.—An exceedingly soluble Hg preparation, which has been tried chiefly in France for intramuscular injections; 00.5/50.0 contains in 0.02 about 0.008 metallic mercury. Injections biweekly into the gluteal region are well borne. It may also be given internally in solution or pill form for syphilis. As eye lotion, it is recommended in the strength of 1 to 30 (dissolved with heat).

Hydrarg. Cyanatum.—Darier uses this salt for intravenous injections in syphilis; only, however, in severe syphilitic affections of the eye, in doses of 1 to 2 mg. *pro die*, increasing to 5 mg. Subconjunctival injections are also used.

Hydrarg. Sulphuricum Aethylevatum, *Suplamin*, is recommended as a collyrium, in solutions of 1/3,000 to 1/5,000.

Jequiritol.—Hoor (*Zwanglose abhandlungen aus dem Gebiete der Augenheilk.*, Band 5, Heft 3 and 4) mentions as contraindications to its use: all ulcerative processes of the cornea, abscess, lymphatic efflorescences, fresh opacities and maculae of the cornea, fresh pannus trachomatous and lymphaticus, in conjunctival granulations and follicles.

Hydrogen Peroxide was used by Wolffberg with success in the treatment of lid diseases; 0.3 per cent. solution, applied by cotton pad, to cleanse the lid margins.

Yohiminus Hydrochloricum, recommended first as aphrodisiac, was shown by Magnani and others to be an anesthetic for the cornea and conjunctiva. Hoike uses 1 per cent. aqueous solutions for instillation, with the same effect, but it is inferior to cocain and adrenalin.

The Action of Hot Water Applied Directly to the Cornea in Corneal Infiltrations.—Manolesco (Bucarest) (*Annales d'Oculistique*, March, 1904) has used direct applications of hot water in cases of deep infiltration of the cornea, especially in parenchymatous keratitis. After instillation of cocain, the lids are separated, and water of a temperature between 70° and 80° is dropped upon the cornea by a pipette. The treatment is given twice daily, and lasts from five to ten minutes. The temperature of the lower cul-du-sac is raised 1°, the pericorneal injection increases, and any existing pannus becomes more pronounced, but this condition disappears in about five hours. The treatment hastens the absorption of the infiltrates, and shortens the course of the disease. Moreover, it is

easy of application, and is followed by no accident, even when the water is too hot.

Contribution to Our Knowledge of Osteoma of the Orbit.

A. Birch-Hirschfeld (*Klin. Monatsbl. f. Aug.*, March, 1904) reports a case of osteoma of the orbit which arose from the upper wall of the frontal sinus, and extended into the orbital cavity, displacing the eyeball, and causing intense pain and double vision. The size and position of the growth were accurately determined by lateral and frontal Röntgen ray photographs, and the growth was successfully removed by osteoplastic resection of the anterior wall of the sinus. The patient was seen five months later, and examination showed return of the eyeball to its normal position and absence of any recurrence. He agrees with the opinions of Bornhaupt, Sprengel, Zimmermann and others that such patients should be operated upon and relieved of their pain and diplopia, and the danger which they run of blindness and of brain complications if Berlin's plan of non-interference is carried out, but urges the great value of the *x*-ray examination. Taranto's figures show a mortality of 6.77 per cent. in cases operated on from 1875 to 1900. The method of operation will depend upon the size and point of origin of the growth in each particular case.

Latent Osteoma and Mucocoele of the Frontal Sinus With Negative Rhinoscopic Examination of the Sinus.—Axenfeld (*Klin. Monatsbl.*

f. Augenheilk., March, 1904) corroborates Birch-Hirschfeld's opinion as to the importance of *x*-ray examinations in growths of the orbit, citing a case in which an osteoma growing from the roof of the sinus was concealed by a large mucocoele which presented through an opening in the roof of the orbit. Examination through the nose showed an apparently normal frontal sinus, as the osteoma was attached to a septum of bone that separated the sinus into two parts, and shut off the mucocoele from the central, healthy part. A Krönlein operation was performed to remove the supposed orbital growth, but after opening the mucocoele the osteoma was found, and the anterior wall of the sinus had to be cut away in order to remove it. An *x*-ray examination would have shown the true condition and shortened the operation materially.

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

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Editorials.

A DIRECTORY OF OCULISTS.

To see ourselves as others see us is not always pleasant; but with good common sense, it may always be made profitable. The estimate of others can not be accepted as certainly correct, for it is usually founded on incomplete and inferior information. But even where it is glaringly erroneous it should be suggestive, and often it reveals where and how we have failed to make ourselves properly known.

This is strikingly illustrated by a recent prospectus announcing a "Directory of Opticians, Jewelers and Oculists of the United States." The oculists come in at the end of the list, as befits their small numbers and inferior commercial importance. But it is evident that the promoters of this directory think they belong in the same class with the opticians and jewelers. Indeed, they have been so highly regarded that the agents of this proposed publication have gone to the trouble of interviewing some of those whose names are rather widely known, and endeavoring to get the assistance of those names in promoting this commercial venture. These oculists have been offered special inducements, such as having their names printed in several places in the proposed directory, as among refractionists, dealers in artificial eyes, etc., as well as in the list of physicians whose practice is devoted to diseases of the eye. How many have accepted such favorable offers, we have as yet no means of knowing.

It is probable, however, that a certain class of spectacle venders will, to a man, gladly embrace such an opportunity to get into respectable company. The title "oculist" printed after their names on the spectacle cases that they dispense, and the diploma conferring the degree of Doctor (of Refraction), after a six weeks' correspondence course, will seem small matters compared with this

opportunity of being classed with the great "Professors" of Chicago or New York.

Seriously, if we leave the compilation and publishing of a professional directory to those who undertake it simply to obtain the largest financial return, we have no right to complain if our professional good standing is auctioned off to those who most need (and can best afford to pay for) a semblance of respectability. If we permit our names, or pay to have our names, printed in lists along with traveling opticians, doctors of refraction, etc., what right have we to complain when the general public confuses us with them?

More than once the officers of the Section on Ophthalmology of the American Medical Association have made especial effort to secure the names of all reputable physicians giving especial attention to diseases of the eye. These efforts have not met with the assistance and the support that they deserved. There ought to be a complete and reliable directory of this sort, edited under responsible professional supervision, and revised annually. It could easily be secured, if those most directly interested in the matter would give the proper support to such an undertaking.

E. J.

Correspondence.

THE AXIS OF ASTIGMATISM.

ANN ARBOR, Oct. 4, 1904.

To the Editors:—In your report of the Section of Ophthalmology, American Medical Association, I note that in my discussion of Dr. Claiborne's paper, "The Axis of Astigmatism," the stenographer reports me as saying that I "considered the condition of astigmatism to be due to pressure of the lens upon the cornea." The report should have read "lids" instead of "lens."

Thanking you for the correction, I am, sincerely yours,

O. A. GRIFFIN.

GRANULATIONS IN TRACHOMA.

A SIMPLE INSTRUMENT FOR REMOVING THE GRANULATIONS IN TRACHOMA; REMARKS ON THE ARTICLE OF DR. STEVENSON IN THE AUGUST, 1904, NUMBER.

To the Editors:—Judging by what I hear and read, it seems that Kuhnt's admirable instrument is little known in the United States and hardly ever used. I have been using it for trachoma quite often for a number of years, to my perfect satisfaction, but in a different manner than many Americans visiting my dispensary are inclined to believe. The correct way to use these forceps is to shove the perforated blade beneath the upper (or lower) lid, *without everting them* at all, and then to squeeze the whole lid, gradually moving on, between the blades. Kuhnt, I believe, usually makes a few subconjunctival injections of a 5 per cent. cocain solution before pressing; I generally get along without, because I find that the pressure hurts about the same, with or without cocain.

The new instrument of Dr. Stevenson is constructed on the same principles as Kuhnt's, but seems to be applied in the same way as Knapp's rolled forceps. This surprises me, so that I merely wanted to call attention to the correct mode of application intended for the similar instrument of Kuhnt.

DR. E. H. OPPENHEIMER, Berlin.

Notes and News.

DR. W. REIS is practicing at Bonn.

DR. SCHIMANOWSKI has been made professor at Kiew.

DR. BRUNO FLEISCHER is now practicing at Tübingen.

DR. VON SIKLOSSY is following his profession at Budapest.

DR. J. MOORES BALL has taken charge of the *Annals of Ophthalmology*.

DR. O. A. GRIFFIN, Ann Arbor, Mich., has returned from a tour of the European eye and ear clinics.

MR. PERCY FLEMING has been appointed professor of ophthalmology at the University College (London).

PROF. C. A. GAYET, the distinguished French oculist, is dead. He was professor of ophthalmology at Lyons.

MR. JOHN TWEEDY has been made emeritus professor of ophthalmic medicine and surgery at the University College, London.

SIR ANDERSON CRITCHETT and MR. PRIESTLY SMITH have been made honorary members of the Gesellschaft der Aerzte of Vienna.

A NEW French eye journal, *L'Ophthalmologie Provinciale*, is to be published at Tours under the editorship of Drs. Chevalier, Cosse and Motais.

DR. A. O. PFINGST of Louisville, Ky., has been elected to the chair of eye, ear, nose and throat in the Kentucky University Medical Department.

DR. JOHN L. ADAMS and DR. GEORGE ASH TAYLOR have been appointed professors of ophthalmology in the New York School of Clinical Medicine.

DR. FLEMMING CARROW begs to announce to his colleagues that he has resigned the professorship of ophthalmology and otology in the University of Michigan, and has opened an office in the Wash-

ington Arcade, Detroit, where he will continue in the practice of diseases of the eye and ear.

DR. ROBERT KOCH retires on October 1 from his post as director of the Institute for Infectious Diseases in Berlin. He will be succeeded by Dr. Gaffky of Giessen.

At the Philadelphia Polyclinic Hospital, Dr. William Sweet succeeds Dr. H. F. Hansell as professor of the diseases of the eye. Dr. Hansell becomes professor emeritus.

WE regret to announce the death of Dr. Carl Genth, a noted physician, who, in conjunction with Pagenstecker, published the *Atlas der Pathologischen Anatomie des Augapfels*.

BEQUEST TO EYE AND EAR HOSPITAL.—Dr. William H. Crawford, who died August 28, at 205 West Fifty-seventh street, left \$10,000 to the New Amsterdam Eye and Ear Hospital.

DR. W. R. PARKER, of Detroit, Mich., has been elected professor of ophthalmology in the University of Michigan to succeed Dr. Fleming Carrow, who resigned the position last summer.

DR. FRIEDRICH HEISRATH, a well-known ophthalmologist, the originator of the operation for the relief of chronic trachoma by excision of the tarsus, died July 12, 1904, at Königsberg. He studied under Jacobson.

MR. KENNETH SCOTT will be out of England during the winter months, engaged with his ophthalmic practice in Egypt, and will return to London on Thursday, April 20, 1905, to continue his consulting practice during the season.

DR. CHARLES A. OLIVER has returned to Philadelphia after attending the meeting of the British Medical Association, where he was the guest of the ophthalmic section. He spent some time in sight-seeing in the Scandinavian peninsula.

THE first number of the *Mitteilungen aus der Augenklinik in Jurew* has appeared, as an illustrated monograph of 110 pages, by Professor Ewetsky, on Syphiloma of the Ciliary Body. The series is published by S. Karger, 15 Karlstrasse, Berlin, and, judging from the first issue, will be a valuable contribution to ophthalmic literature. In addition to four cases of syphiloma, that are thoroughly described and reported in all their clinical and anatomical relations, Professor Ewetsky furnishes complete ab-

tracts of some sixty-seven others described in the literature of the subject.

MINNESOTA SCHOOL TEACHERS TO LEARN SOMETHING ABOUT THE EYE AND EAR. Under the supervision of the Minnesota State Board of Health, eye and ear specialists will lecture to school teachers at summer training schools this year, with the object of informing school teachers of the common eye and ear diseases, methods by which they may be detected and the proper course to take with children in the schools who are afflicted with any of the long list of eye and ear troubles.—*New York Medical Journal*.

At the Denver meeting of the American Academy of Ophthalmology and Oto-Laryngology, held on Aug. 24, 25 and 26, 1904, the following officers were elected: President, Dr. H. W. Loeb of St. Louis, Mo.; first vice-president, Dr. D. T. Vail of Cincinnati, Ohio; second vice-president, Dr. Robert Levy of Denver, Colo.; third vice-president, Dr. Eugene Smith of Detroit, Mich.; secretary, Dr. George F. Suker of Akron, Ohio; treasurer, Dr. Otto J. Stein, Chicago. Council: Drs. H. W. Loeb, Edward Jackson, W. L. Ballenger, Casey A. Wood, J. M. Ray of Louisville. The next place of meeting will be decided upon by the council and will be announced shortly.

FOURTH PAN-AMERICAN CONGRESS.—The meeting of this congress, which was to have convened the latter part of December of this year at Panama, has been postponed until the first week in January. This was done at the request of many physicians who proposed to attend it, as they desired to be at home with their families during the Christmas holidays. The delegates from this side of the continent will, therefore, leave on Tuesday, December 27, if they go down from New York by the regular Pacific Mail Lines, or at other dates if they go by way of New Orleans or Jamaica. The congress will be held from the 4th to the 7th of January. The dates of sailing from the Pacific coast have not yet been ascertained. The officers of the congress appointed by President Amador of the Republic of Panama are: Dr. Julio Ycaza, Dr. Ciro Uriolo, Dr. J. Calve, Dr. Carlos Cooks, Panamanians; Dr. Gorgas, chief of the Panama Canal Sanitary Commission; Drs. Carter and Ross, Americans; Dr. Manuel Corales, Cuban; Dr. M. Stern, English, and Dr. Oduber, Dutch. This bids fair to be the most successful Pan-American medical congress that has ever been held, on account of the central situation of Panama and its easy approach from both sides of

North America, Mexico, Central American Republics, as well as from the countries on the north and west sides of South America. There will be but four sections at this congress—surgery, medicine, hygiene and the specialties.—*Medical News*.

THE recent death of some twenty persons in New York from drinking cheap "whiskey" made by adding "deodorized" wood alcohol to a combination of ingredients equally removed in character from the genuine article has again directed attention to the question of methyl alcohol intoxication. The articles of Dr. Frank Buller and Dr. Casey Wood in the current numbers of the *Journal of the American Medical Association* furnish conclusive evidence of the widespread employment of wood spirit as an adulterant in many fluids of domestic consumption. As a step towards the prohibition of the manufacture of "deodorized wood alcohol" every methylated mixture should be sold as poison and should bear a label warning the public of its dangerous properties.

PAN-AMERICAN MEDICAL CONGRESS.—President Amador of the Republic of Panama has appointed the following officers of the Fourth Pan-American Medical Congress, to be held in Panama the first week in January, 1905: President, Dr. Julio Yeaza; vice-president, Dr. Manuel Coroalles; secretary, Dr. Jose E. Calve; treasurer, Dr. Pedro de Obarrio; committee on organization, Drs. J. W. Ross, J. Tomaselli and M. Gasteazoro. There will be but four sections, to which the following officers were appointed: Surgical Section—Major Louis LaGarde, president; Dr. E. B. Harrick, secretary. Medical Section—Dr. Moritz Stern, president; Dr. Daniel R. Oduber, secretary. Section on Hygiene—Col. W. C. Gorgas, president; Dr. Henry E. Carter, secretary. Section on Specialties—Dr. W. P. Spratling, president; Dr. Charles A. Cooke, secretary.

HOW PHYSICIANS AID CHARLATANS.—A writer in the *Corr.-Blt.f.Schweizer Aerzte* comments on a "nature healers' " congress which he recently attended. He found that great stress was laid on the disparaging criticism of one physician by another, of which the "nature healers" cited many examples. Any criticism of his medical predecessor by a physician is playing directly into the hands of charlatans, as it undermines the confidence of the public in the profession. "How easy it would be," he says, "to explain a change in the diagnosis or treatment by the development, the progress of the disease, and thus protect the reputation of his predecessor and strengthen the patient's tottering faith in the

profession." He adds, also, that we must impress on the public the fact that the medical profession is versed in the so-called "nature" methods, hydrotherapy, etc.—*Journal of the American Medical Association*.

PLANS FOR THE NEW MANHATTAN EYE AND EAR HOSPITAL.—The Manhattan Eye, Ear and Throat Hospital, now at Forty-first street and Park avenue, is soon to be moved. For many years the accommodations have been insufficient. In the thirty-four years of the hospital's existence, the city has grown in population from 950,000 to about 4,000,000, and in area from about 20 square miles to over 300. This great increase has not been met by a proportionate growth on the part of the hospital. The increase in the number of patients from 1,717 in 1869 to 28,479 in 1903 gives an idea of the overtaxed condition. When it became absolutely necessary to meet the requirements for more room, a building committee was formed and ways and means were discussed to the end of acquiring a new site and building. The present property is worth over half a million dollars, and this, combined with the voluntary contributions and other revenues possessed by the institution, constituted a fund sufficient to warrant the acquisition of the nine lots next door to the Baron Hirsch Trades School, in East Sixty-third street. York & Sawyer were selected to design the new building. The capacity of the old building under normal conditions is fifty ward patients and eight private patients. The new institution will accommodate 400 ward patients and about 50 private patients. There will be two buildings; one on the north side in the shape of a horseshoe, so that its wings will be lighted on three sides and receive the sun all day, and the other a lower, larger building on the south side for administrative purposes, including rooms for nurses, servants, the superintendent, and the members of the staff. In the north building or hospital proper the entrance floor is to be occupied by the reception rooms and offices, and the floor directly above will be the eye clinic. Above this floor there will be six more stories of wards. Above these will be two floors for private patients, and the next floor will contain the three separate operating rooms for the eye, ear and throat departments. On the top floor will be the pathologic and bacteriologic laboratories, the kitchen, the dining rooms for nurses, and other apartments considered necessary in a modern hospital. Each physician is allowed to send his poor patients to the institution, but he himself must prescribe for them, and he alone is responsible for their welfare. These patients must pay for their treatment if their doctor thinks they can do so, thus preventing any abuse of the hospital privileges. The private pa-

tients occupy separate rooms, for which they pay; and they are taken care of by their own physician. No one is refused admittance except in rare cases when the patient can but will not pay the small fee charged. The hospital has a post-graduate department, where any physician in possession of a degree may take a course which lasts about three months, and in this way become thoroughly familiar with new phases of surgery exemplified in the various departments comprised by the hospital.—*Medical News*.

PROPOSED INTERNATIONAL OPHTHALMOLOGICAL SOCIETY.—Mr. W. M. Beaumont, Bath, has issued to the tenth International Ophthalmological Congress, which was recently held at Lucerne, a fly-leaf suggesting the formation of an International Society of Ophthalmologists. He states that the nine International Congresses of Ophthalmology are monuments which record the steps the science has made, and that a comparison of their *Transactions* from the first volume in 1857 to the ninth in 1899 shows how rapid the march of knowledge has been. He thinks that the congresses would be bound together in unbroken continuity if the intervals were bridged by such an international society as he proposes. There need, he thinks, be no change in the routine of the meetings of the Congress, but believes that "every nationality, with its own executive, always in touch one with the other, and always working in unison, would be ready, when its turn came, to prepare for a congress. For a small annual subscription this world's society would issue to every member annually a report, printed in his own language, on the progress of ophthalmology in all parts of the world, with monographs on special subjects by leading authorities. Members of such a society, traveling in foreign countries, would have a bond of union which would give them facilities for seeing the work of their confrères with but slight formalities, and an 'entente cordiale' would be established which perhaps could be formed in no better way." Such a scheme must have the sympathy of those who recognize how much the progress of knowledge and the application of new discoveries to practice is hindered or delayed in all departments of medicine by differences of language, by national prejudices, and by the multiplicity of transactions and special journals. We should have thought that ophthalmology suffered less than almost any other specialty from these difficulties, but if the ophthalmologists can produce a good working scheme there can be little doubt that their example will be followed. The risk is that the proposal may result merely in the establishment of one more special periodical.

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
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Original Articles.

EUROPEAN EYE CLINICS.

FRANK E. BRAWLEY, M.D.

CHICAGO.

I. LONDON.

We excuse for this article upon some of the foreign eye clinics the hope that prospective students may derive some benefit from a description of them.

With this end in view the writer proposes to go into detail regarding the fees to be paid, the expense of living and the possibilities for study in the various hospitals recently visited by him.

To the student unfamiliar with German and unwilling to devote the time necessary to learn it, London offers the best work. In London it is well to locate near Russell Square, which is conveniently situated for the eye hospitals, the business section, principal theaters, and other places of interest. Bedford Place, Russell Square, is devoted almost exclusively to boarding houses where one may go directly from the train and be sure of securing comfortable lodgings at a moderate rate. In this neighborhood a room with board costs thirty-six shillings or \$9.00 per week. But in Endsleigh Gardens, not far away, less comfortable quarters may be had for twenty-five shillings per week.

Probably the most popular eye hospital is the Royal London Ophthalmic Hospital, better known as Moorfields. It is reached by a penny horse car which runs on Theobald Road from Southampton Row—less than three blocks from Bedford Place. Getting down at City Road the hospital is two blocks to the left on City Road. A week should be devoted to meeting the various attending surgeons, looking on at the different clinics and discussing their possibilities with the Americans studying there. Conditions change continually but in general it is a good plan to get on as

assistant to some of the younger men who are more willing to give their time to teaching.

The fees are \$15.00 for three months work, or \$25.00 for a perpetual ticket. Regular courses are given in the various subdivisions of ophthalmology, but most of them are elementary. In this connection it should be said, with emphasis, that the student ought to have a good grounding in American ophthalmology before considering a course of study abroad. This is especially necessary in such branches as refraction and ocular therapeutics, which for many reasons are best studied in America.

The class of patients treated in foreign clinics is entirely different in temperament, habits and education from that which we see in our own clinics. Our patients demand different treatment, more accurate correction of refractive errors and more consideration at the hands of the doctor than does the foreign clinic patient, whose unquestioning obedience is a continual marvel to us. A student should therefore prepare himself as broadly as possible in his chosen specialty before studying in Europe; otherwise, having no standards of comparison, he is incapable of judging whether the work he sees is good or bad.

If one wishes to carry out clinical experiments in any department of ophthalmology he can find plenty of material at Moorfields. The attending surgeons are usually willing to allow clinical assistants to treat all cases illustrating any particular subject under investigation.

The routine clinic work must be done, however, and that is a great drawback, as patients are so numerous and attendants so comparatively few that one is obliged to spend so much time on uninteresting cases that very little time is left for the pathologically important ones. Naturally, if one shirks routine work for something more interesting it brings one into disfavor with the other assistants and results in their boycotting him when they have good cases of their own.

If the student shows that he is fairly well informed he is allowed to do a great deal of minor eye surgery and may even be permitted to perform occasional muscle operations after he has worked for a number of months in the clinic. On the other hand, there are practically no eye hospitals where the student is allowed to do the more important operations. There are always so many efficient assistants who are spending several years in the clinic that a volunteer assistant must content himself with minor operations. At Moorfields they now have a special attending surgeon who cares for most of the routine refraction cases. This is a marked im-

provement over the previous régime, since the assistants are now free to devote themselves to a more thorough examination of special cases. The work is also much lightened by the junior house surgeon, who has a separate "treatment room" for patients referred to him from the various clinics for a continued course of treatment, as a trachoma, etc. There are four clinics in operation during the same hours daily, beginning at 9 a. m. and usually ending about 2 p. m. The student will do well to get on as assistant to two surgeons who attend twice a week, reserving two days for observing the work of some of the other men, for visiting the wards with them and for witnessing operations, which are usually held at 11 a. m. every day.

The regular teaching courses are held in the evening, chiefly from 7 to 9 p. m., although a few of them are given after the clinics, beginning at 3 p. m.

The course in ophthalmoscopy is particularly good and one must register several months in advance for it. The teaching in this course is, however, not to be compared with the German courses, where every minor detail of the fundus, with its pathology, is discussed with gratifying minuteness.

The material for study in the Moorfields classes is exceptionally good, and during the course one may study nearly every fundus picture known to ophthalmologists. The plan of paying patients to present themselves for examination during the course works here very successfully and the material at command is thus constantly augmented by the rarer fundus cases seen in the daily clinics.

A very good course in pathology is also offered.

Royal Westminster Eye Hospital.—Westminster Eye Hospital, Chandos and King William streets, Charing Cross, is almost as well known as Moorfields and is well worth visiting. Here the clinics begin at 2 p. m., so that one may attend without conflicting with the work at Moorfields. Of the surgeons, Mr. Frost and Mr. Hartridge are more widely known in America, on account of their text books, than the other surgeons. Let me say that Mr. Frost, in his teaching of ophthalmology, continues the good impression made by his atlas of the ocular fundus. Westminster also has the advantage of offering a quiet place to work, in striking contrast to the arrangement at Moorfields, where one must labor in a room crowded with patients. The patients at Westminster are admitted only as they are needed; confusion and crowding are thus avoided.

Royal Eye Hospital.—Another afternoon clinic is the one at the Royal Eye Hospital, London Road, S. E. Sir William Collins at-

tends on Mondays and Wednesdays, when he makes the rounds of the wards and operates. External diseases of the eye are very well demonstrated in this clinic and practically all the routine refraction is done by a surgeon employed for the purpose.

Very few students discover this little hospital, and as a result there is a greater opportunity for those who do attend. All of the general hospitals have their eye departments, but do not offer any special attractions to students.

The National Hospital for the Paralyzed and Epileptic in Queen's Square, near Russell Square, should by all means be visited whenever possible. This is the hospital made celebrated by Sir William Gowers. Risien Russell, who does the active work there, bids fair to rival even Gowers. His best work is to be seen on Tuesdays at 1:30 p. m., and it is well to be on hand in good season, as his clinic is always crowded. There is probably no better place than this to study the pure neurology of the eye, the brand which is gaining so rapidly in importance.

St. Bartholomew's Hospital, Smithfield.—One should not fail to visit the clinic at this, the oldest hospital in London. The district thereabouts is a remnant of earliest London, and is known as Little Britain. Some original Hogarths have been found and restored in the great hall of the hospital, and altogether it makes a place of great interest to visit, aside from the work to be seen there.

The Museum of the Royal College of Surgeons.—In Lincoln's Inn Fields, near the supposed location of the "Old Curiosity Shop," is the home of the Royal College of Surgeons. The museum is one of great interest to the student of ophthalmology because of the valuable collection of pathologic specimens to be seen there. The histories of all the specimens are given and throw much light upon the evolution of our ideas of pathology. It is well worth a number of visits and one requires only an introduction from a member to go as often as one wishes.

II. BRESLAU.

Prof. William Uhthoff, who has charge of the University Eye Hospital in Breslau, Germany, is a man well known in this country.

He is especially friendly toward Americans and a stranger is always certain of a warm welcome at his hands.

Owing to its location, off the beaten path of travel, Breslau is little visited by American students, although the faculty is one of the best in all Germany, including as it does such famous names as those of Mikulicz, Strümpell, Neisser and Uhthoff. The

buildings are entirely modern in construction and are scattered about in a large park on the banks of the Oder, the highest ground about Breslau.

The eye hospital, as shown in the accompanying photograph, is a beautiful building, entirely modern in equipment. There are three official assistants who live in the hospital and a military assistant ordered there for study by the government. In addition there are usually four or more volunteer assistants. The routine day's work begins about 9 a. m., when the assistants examine the cases newly admitted to the hospital and those intended for operations that day. The assistants who are working in the laboratory on pathology or bacteriology usually begin work at this time also.



Fig. 1.—Königliche Universitäts-Augenklinik in Breslau. (Front view.)

to prepare the sections made for Dr. Uthoff's inspection at 9:30. After the visit to the laboratories Dr. Uthoff leads the procession of assistants through the visit to the various wards and discusses the progress and management of the various cases. The student thus gains valuable diagnostic points and is able to watch the cases throughout their entire course. After the rounds have been made the new cases in the out-patient department are distributed among the assistants to be examined. The results are all shown to Dr. Uthoff for his opinion and the important cases exhaustively discussed.

The university course of lectures is given from 12:30 to 2 p. m. four times a week. The various headings are taken up systemat-

ically and taught in a surprisingly thorough manner when one remembers that the students are doing general not special work. The first half hour is devoted to demonstrating cases illustrating the subject to be taken up on that particular day. Microscopes are supplied, with specimens illustrating the pathology of the condition, and these are also demonstrated to the students during the first half hour. The lecture follows and at its close the pathologic specimens are projected upon a screen and demonstrated by Prof. Uhthoff himself.

After the lecture come the operations, of which there are usually from fifteen to twenty-five weekly. The most rigid asepsis is car-



Fig. 2. Königl. Universitäts-Augenklinik in Breslau. (Rear view.)

ried out, and this is a great relief after having seen the careless methods so generally employed in England and France, and in some parts of Germany.

There is a very good library in the hospital and one's afternoons may be very profitably spent there or in the laboratory.

Prof. Uhthoff lays much stress upon the relation of general conditions to the eye, and the patients are sent to the various clinics for examination and a report of their general health.

Each Thursday Dr. Mann visits the eye hospital and examines the cases requiring the care of a neurologist. This work has been especially thorough for the past year, as Prof. Uhthoff is writing that subject for the *Graefe-Saemisch Handbuch*. Special courses during the winter semesters are given upon ophthalmoscopy,

pathology and bacteriology, and physiologic optics by Prof. Groenow and Dozent Dr. Heine. The courses are free to the volunteer assistants who attend, partly to aid in instructing the students in the use of the ophthalmoscope.

German is much more rapidly acquired in a small city like Breslau, because of the necessity for speaking it. One is forced to work harder at German as no one speaks English, and although it is a very trying experience the results are certainly better than if one studied the language with a teacher in a medical center where much English is spoken.

It is well to know some German before going to such a hospital, and it may be acquired most advantageously in Vienna. There one may take excellent courses in English and live with a German family and take lessons.

For the ideal work, Vienna certainly is the place to go. There one may take up just exactly what one wishes to do and nothing else.

As an assistant one is obliged to waste much time upon uninteresting routine work. Not so in Vienna. The courses are private and limited to from five to ten students and the usual fee is about \$10 per month.

In English, Prof. Elschnig and Dr. Lauber of Prof. Schnabel's clinic give probably the best courses in ophthalmology and external diseases of the eye. Drs. Meller and Hanke of Prof. Fuch's clinic also give these courses in English. The courses on treatment and refraction are a waste of time, and such work may be much more satisfactorily obtained in New York or Philadelphia.

Prof. Wintersteiner's course on pathology is probably the best one in Vienna, but Dr. Salzmann of Prof. Fuch's clinic gives the course in English, and very well, too, although his specimens are said to be inferior to those of Dr. Wintersteiner.

At the Anatomische Institut one may purchase material and do any amount of dissections and operations upon heads. The prosector is the man to consult. All such points of general information may be obtained from the member of the Anglo-American Medical Association in Vienna, who is especially delegated for such work. He knows just what courses will be open and what ones are worth while, and is usually able to put one to work without delay. The material used in the various courses has been collecting for years. The patients are paid small sums to exhibit themselves and in this way one sees types of almost every disease known in ophthalmology.

The courses mentioned are all given in the Allgemeines Krankenhaus, an arrangement which is a great convenience and a time saver, obviating the necessity of long car rides between clinics, which one finds in Berlin, for example.

In the neighborhood of the Krankenhaus are to be found many boarding and rooming houses whose rates vary from \$5.00 to \$10.00 per week. Good rooms cost from \$8.00 to \$12.00 per month and many students rent rooms and get their noon and evening meals in restaurants, taking the usual continental breakfast of coffee and rolls in their rooms. The estimated expenses of the average student, including payment for his courses, in Vienna is about \$100 monthly, as against \$125 in London and \$50 monthly in Breslau.

The Anglo-American Medical Society referred to above was organized to protect the students' interests by regulating the price of courses and eliminating the poor courses. Students are expected to join the society upon their arrival, paying the 42 cents dues, and then register for the courses they wish to take.

Many of the courses are so much in demand that one must wait from one to six months before one's turn comes. The system of registering, however, gives to each a fair chance, where before courses were held by students for their friends for months at a time. The society meets monthly in one of the large restaurants, where the room is paid for by having the members take their dinners there at the meeting.

Each meeting is addressed by one of the prominent medical men of Vienna, who is the guest of the society for the evening. There is an "Orientation Committee" composed of one representative from each of the medical branches. These men are posted on all courses in their particular field and are ready to give any information the prospective student may require.

PARIS.

The French clinics do not seem to be popular with American students. The writer did not see an American or English student in any of the clinics visited. This is no doubt chiefly due to the difficulties presented by the French language, but also the fact that foreigners in general are not so cordially welcomed as in the German clinics, for instance.

The largest clinic is that of De Lapersonne in the Hotel Dieu, opposite the cathedral of Notre Dame. This was formerly Panas' clinic, and the material is very large indeed. The operations are performed on Tuesday and Thursday mornings and begin at 9 a. m. The out-patient clinics are held daily at 10 a. m.

The clinic of Prof. Landolt is a semi-private clinic and is held at 27 Rue Andre des Arts. The most interesting and profitable time to visit this clinic is on Wednesdays and Saturdays from 12 to 2 p. m. The operative clinic is held only on these days, and as Prof. Landolt and the full staff of assistants is present at these times the clinic is then at its best.

Prof. Galezowski's clinic is at 41 Rue Dauphin, near the Pont Neuf. The clinic days are Mondays, Thursdays and Fridays, and the hour 3 p. m.

Prof. De Wecker is at 55 Rue de Cherchi Midi. The best time to see his work is at 4 p. m. on Monday or Wednesday, these being the days of his operative clinics.

Advanced therapeutics has its exponent in Paris, Prof. Darier. He is best known to us through his work, "Ocular Therapeutics," translated into English by Stevenson of London. He holds his clinic in Rue Buffault daily from 2 to 5 p. m.

For a short stay in Paris the Hotel D'Orient may be recommended. It is quiet and very reasonable as to rates, \$1.00 per day. It is very centrally located also, being within two blocks of the Opera, around which all things in Paris revolve. If, however, one contemplates remaining for a month or more, the location most convenient to the clinic is a room in the Latin Quarter.

ZURICH.

In Zurich, Switzerland, the writer spent a profitable month with Prof. Haab, of whom we know chiefly through his advocacy of the use of the giant electro-magnet in the removal of steel chips from the eye.

The large number of accidents occurring in the numerous manufacturing plants in Zurich has given Prof. Haab a large experience in this particular field, and the student may gain some valuable ideas from his technic.

The eye hospital occupies an entire building in the University group and is modern in its equipment. Elaborate arrangements are made for teaching during the semester, but no private special courses are given. There is plenty of good clinical material, well and thoroughly demonstrated. The Swiss language is of course a drawback, but most patients are able to speak German if necessary.

Prof. Haab, especially since his visit to America, is very well disposed toward Americans and is willing to consider applications from Americans for his three assistantships. Such an opportunity is exceptional and no doubt will be much appreciated by any one who wishes advanced work in ophthalmology.

August and September are the best months to spend in Switzerland, and one could very easily plan to visit Prof. Haab at that time. He is usually away for his vacation in August, however, and begins his hospital work after September 1. April and August are the vacation months with the majority of the chiefs of the various continental clinics, but the clinics are continued by the assistants, who are often more willing and have more time to show one interesting cases than the chief.

In Zurich one should also see Prof. Krönlein, who originated the bone flap operation for the removal of retro-bulbar tumors. He is a general surgeon and a great friend of Prof. Haab, whose clinic furnished the material for working up the technic of this operation.

MUNICH.

Prof. Eversbusch is the university professor of ophthalmology in Munich. His hospital is very antiquated, but he has a large variety of material and has an average of seventy-five beds in constant use. Herzogspitalstrasse 18 is the address. He is an extremely energetic man and begins his operating and out-patient work at 7 a. m. winter and summer. He and his assistants are constantly experimenting. They have an abundant supply of animals for that purpose and a large out-patient department as well. During the writer's visit they were experimenting upon rabbits' cornea to note the effect of light rays, particularly those from a new lamp, whose light came from the combustion of iron in an electric arc. The whole process was a state secret, however, so no details can be given. The results will no doubt be published in the near future.

The operations by Prof. Eversbusch are unusually numerous, averaging twenty-five weekly. There is no operating room, and the operations are all carried out in the ward beds in the midst of the other patients. A new hospital is soon to be erected, however.

Prof. Schloesser has a private hospital at No. 19 Herzogwillhelmstrasse. It is in sharp contrast to the university hospital, being entirely modern in equipment and arranged with a view to the comfort of eye patients. There are sixty beds arranged in three different classes on as many floors. The first class rooms are more elaborately furnished and the reception room boasts a piano. All classes are very well provided for, however. Each floor has a common reception room with a balcony, where the patients may amuse themselves when able to go about, as most eye patients are able to do. There are also plenty of shower and tub baths and an electric sweat bath, all great luxuries in Germany. The decorations are

al. in neutral tints, an excellent feature in an eye hospital, and a great relief from the glare of the usual white enamel, especially to eyes already extremely sensitive to light. Linoleum is used to cover all floors and has the advantage of being clean and noiseless. There is an out-patient department in connection, where special courses are given. The best courses are probably those on external diseases and therapeutics. These are held daily from 12 to 1 p. m.

KÖNIGSBERG.

Another very interesting clinic, and one which is seldom visited by Americans, is that of Prof. Herman Kuhnt in Königsberg. His researches into the trachoma question and the immense progress his original methods has brought about in the treatment of that terrible disease have earned for him an enduring fame. No one who has not seen the terrible condition to which trachoma has reduced the working classes of Northeastern Germany and adjacent parts of Russia, can ever realize the magnitude of Prof. Kuhnt's undertaking.

About five years ago the government was called upon to plan a campaign in conjunction with the physicians against trachoma. Königsberg was made the center for treating the more severe cases and a hospital devoted entirely to these cases was erected. This hospital, called there the "Granulose-Haus," was soon filled to overflowing, and now the less urgent cases are housed in boarding houses in the immediate neighborhood, and visit the hospital daily for treatment.

Prof. Kuhnt gave courses of instruction to the general practitioners, and these men were then placed in charge of one of the districts into which the country had been sub-divided. They were responsible for the district, and were empowered to examine any suspected case and to make regular examinations of school children. They taught the people hygiene, and themselves treated the simpler forms of the disease. The result of this systematic treatment has been very gratifying. The earning capacity of the peasants has been greatly increased and much misery relieved.

Prof. Kuhnt says that now it is only infrequently that the very severe forms are seen. His method of treatment cures the trachoma in from one to three months. The percentage of relapses is small and may usually be treated by the local physician of the district. The cases diagnosed as trachoma are required by the law to submit to treatment, and the expenses, including railway fare and living expenses, are paid by the government. The entire sub-

ject is treated at length in Prof. Kuhnt's book, "Ueber die Therapie der Conjunctivitis Granulose."

In visiting Königsberg stop at the "Berliner Hof." It is only a few squares from the hospital and is comfortably heated with steam throughout, a matter of some importance in that climate in winter. The hospital is at No. 1 Lange Reihe and the "Granulose-Haus" within two squares of the main hospital building.

Prof. Kuhnt has a charming personality and impresses one most by his tremendous energy. He is a man with a mind open to new ideas and is very original in his own thinking, in fact more American than one is likely to meet anywhere else in Europe. He welcomes Americans very cordially, and indeed all visitors to his hospitals. The writer is under great obligation to Prof. Kuhnt and his staff of assistants for the many ways in which his visit was made a pleasant and a profitable one.

It is to be hoped that we may receive a visit from Prof. Kuhnt in the near future, perhaps to read a paper before our Ophthalmological Section at a meeting of the American Medical Association.

103 East Adams Street.

CARBOLIC ACID AND AMMONIA BURNS OF THE EYE.*

EDWARD STIEREN, M.D.

Ophthalmologist and Otologist, Passavant Hospital; Assistant in Ophthalmology and Otolaryngology, Western Pennsylvania Medical College.

PITTSBURG, PA.

There is in ophthalmic literature a great dearth of information concerning the action of ammonia on the tissues of the eye. A recent article by Denig in the *Zeitschrift für Augenheilkunde*, April, 1904, calls attention to this fact, the author remarking on the almost invariable disastrous result to the sight of an eye when strong ammonia vapor or water is accidentally projected into it.

I have noticed several features of similarity in the action of carbolic acid and of ammonia on the tissues of the eye for the first few days following their introduction and a great dissimilarity in the ultimate reaction of the tissues, so that the most important feature of such an accident, the prognosis regarding the vision of an eye so endangered, is quite gloomy when ammonia has done the damage, but much better when the agent has been carbolic acid.

* Read before the Pennsylvania State Medical Society, Pittsburg, September, 1904.

Following is a short history of each of four cases of ammonia burns of the eye and three cases of carbolic acid burns.

AMMONIA GROUP.

CASE 1.—Thomas S., age 26 years, occupation pipe fitter. While tightening the joint of an ammonia pipe in an ice plant, July 15, 1901, a leak was sprung in the pipe and the patient received a flow of ammonia vapor directly into his right eye. He was seen four hours later and presented the following condition: Lower half of cornea slightly hazy; lower ocular and palpebral and part of upper palpebral conjunctivæ blanched; marked ptosis of upper lid. For an hour following the introduction of the ammonia the eye was painful; the pain gradually diminished, however, and when seen the eye was comparatively comfortable, the cornea insensitive to touch and photophobia absent. For the ensuing four or five days the slight haziness of the cornea remained stationary, then in spite of all treatment the haziness gradually increased until finally in about five weeks' time the cornea was chalky-white, vascular keratitis developed, and the cornea became staphylomatous.

CASE 2.—Maud C., a domestic, 28 years of age, while uncorking a bottle of household ammonia received a splash of the same in the left eye April 2, 1902. The patient was not seen until three days later, as the pain not being severe and having lasted only a short time, home remedies, bathing the eye with a solution of witch hazel and applying tea leaf poultices rendered the eye comparatively comfortable. She consulted me April 5th when examination revealed the following conditions:

The conjunctiva surrounding the limbus was blanched, the cornea diffusely hazy and the pupil strongly contracted, but without any ciliary injection.

Atropin, warm fomentations to the eye and yellow oxide of mercury ointment were used persistently for three weeks without benefit, the cornea steadily becoming more opaque. Internal administration of mercury and subconjunctival injections of normal salt solution were likewise employed without benefit, so that in two months' time the cornea became entirely chalky white.

CASE 3.—Karl S., 40 years of age, employed in a wholesale meat establishment, was almost suffocated by the fumes of ammonia escaping from a pipe in the refrigerating room, Nov. 16, 1903. He was removed to his home in an unconscious condition and developed a pneumonia from which he died five days later. I examined his eyes four hours after the accident and daily thereafter until his demise. Both eyes suffered equally from the ammonia

fumes, the ocular conjunctivæ presenting a blanched, shriveled appearance and the corneæ a uniform haze, which steadily became worse in spite of the vigorous use of the methods mentioned in connection with Case 2. On the day of his death the corneæ were so opaque that the color of the irides could not be seen.

CASE 4.—H. F. T., a meter reader for a gas company, who carried an ammonia pistol for protection against dogs, accidentally discharged the contents of the pistol, strong water of ammonia, into his left eye April 21, 1904. He cleansed the eye immediately afterwards with water and consulted me the next day. On inspection the lids were edematous and a symblepharon had formed between the upper lid and the eyeball in a line just below the lower margin of the cornea. A blunt probe was used to free this attachment, the cornea being found to be slightly hazy and the pupil strongly contracted. No pain but intense photophobia was present. Olive oil and atropia with frequent cleansings with boric acid solution were used until the ocular and palpebral conjunctivæ had reformed.

May 3. Corneal haziness daily becoming more marked and general, the use of dionin was begun, a 10 per cent. solution being used by the patient at home and the pure drug powdered into the eye on alternate days. Vision at this time equalled counting fingers at 12 inches, the cornea being entirely clouded by a diffuse haziness. Under the continued use of atropin, dionin and warm fomentations the haziness has gradually disappeared with the exception of a patch corresponding to the lower inner quadrant of the cornea and encroaching slightly over the pupillary area. During the month of August a pterygium formed, its head occupying the center of this zone, which was excized August 27th.

The patient had kindly consented to be present to-day and I am privileged to demonstrate the marked improvement that has taken place in his case, due no doubt, to the use of this new and valuable agent in ocular therapeutics. In passing it will perhaps be permitted to remark that dionin is an opium derivative and used locally has marked properties as a lymphagogue on the tissues of the eye.

CARBOLIC ACID GROUP.

CASE 1.—A demimonde, age about 30 years, was admitted to the West Penn Hospital in the fall of 1896. Carbolic acid had been thrown in her face, a portion of it entering the left eye. The conjunctiva was blanched and edematous, finally sloughing off. The cornea was diffusely hazy, pain and photophobia pronounced. Under the use of atropin and warm fomentations and the internal

administration of mercury the corneal haziness disappeared in about four weeks, no impairment of vision resulting.

CASE 2.—H. W., a physician, accidentally received a splash of carbolic acid in his left eye Dec. 28, 1898, while melting crystals of pure carbolic acid over a stove. The pain following the accident was intense and lasted for several days. The ocular conjunctiva was burned white and the cornea became superficially clouded. Subsequently the conjunctiva of the burned area and the anterior epithelium of the cornea peeled off and although the eye remained sensitive for several months, it finally recovered with no impairment of vision.

CASE 3.—F. E., a druggist. While working with crystals of carbolic acid Aug. 20, 1903, some of the acid was splashed into both eyes. Exquisite ocular pain extending to the temples and so severe that morphin alone gave relief, lasted for two days. Both corneæ were denuded of their epithelium and rendered smoky, while the ocular conjunctiva was blanched in an area extending completely around the cornea and about 6 m.m. wide. The pain ceased after the second day under the continual use of warm fomentations and atropin. Four days later the ocular conjunctiva began to slough; on the eighth day the sloughing process had ceased and the corneal epithelium had completely re-formed. The general diffuse haziness of the corneæ gradually cleared away and vision had advanced to normal by September 9.

CONCLUSIONS.

The introduction into the eye of either of these caustic agents in sufficient quantity to cause a marked escharatic action on the conjunctiva would, on first thought, seem to warrant rather a favorable prognosis regarding subsequent vision, especially if the cornea at the time exhibited only slight haziness. That this is a fact when the burn has been caused by carbolic acid the above reported cases bear witness. But we have to deal with a more potent and deeper penetrating agent when ammonia, either as a liquid or a gas, enters the eye. Its action no doubt causes a contraction or an occlusion of the canal of Schlemm, the spaces of Fontana, or, it may be, of the whole lymphatic system surrounding the cornea. Interchange of fluids into the substance of the cornea is thus checked or abolished and a dense, chalky opacity results.

THREE CASES OF VERNAL CONJUNCTIVITIS.

NILS REMMEN, M.D.

CHICAGO.

CASE 1.—Italian, 24 years of age, saloonkeeper. He has the appearance of a man in perfect health. I saw him for the first time June 20, 1902. He complained of photophobia and constant itching in the eyes and said that he had suffered in the same way two summers previously, but had found no relief from treatment. When the weather was cool he was not so uncomfortable, but when the days were hot he suffered. During the winter he felt perfectly well. The conjunctiva in both eyes were diffusely congested, both the tarsal and bulbar, and on the outer side of the limbus were to be seen some large, uneven, very hard nodules. The patient had about 2 D. of mixed astigmatism, which I measured under atropin, but he would not listen to such a thing as wearing glasses. I thought that possibly such an error of refraction if corrected might assist in the treatment. The atropin, which he used for four or five days, did not seem to give much relief, nor did anything that I used locally, and I tried all the usual local remedies.

I then thought that possibly this was a constitutional disease, possibly some acid or other exciting agent in the blood, and prescribed salicylate of soda 7 grs. four times a day. The patient went away and I did not see him that summer. I thought that he had lost confidence in treatment and that I should not see him again, at least as a patient. But the next spring after a few days of hot weather he returned and asked for some more of that medicine. He told me that the symptoms had disappeared after using the medicine three days and did not return all summer. I prescribed the same thing, but did not see him or hear from him until in September, when I saw Case 2, so similar to the first one that it is unnecessary to repeat the symptoms. He happened to be a brother of the first man and told me that his brother had been comfortable all summer after using the medicine a week. I prescribed the same for this case. After two days' use of the salicylate he returned with a broad smile and said that he was comfortable. I have not seen or heard from him since, so that it is doubtful how much effect the salicylates had, as the weather was becoming more cool.

CASE 3.—A woman, married, 23 years of age, American born. First examined July 12, 1904. She was also a very strong looking person in apparently perfect health. She had suffered from itch-

ing and photophobia for some weeks and been treated by an oculist without relief. Her symptoms were also aggravated by hot weather. She had a very marked congestion of the conjunctivæ, but without the discharge, etc., present in ordinary conjunctivitis; but no nodules in C. I carefully corrected some hypermetropia with astigmatism $+1.0+0.71.90$ in each eye under atropin without any change in the symptoms. Neither did the ordinary lotions or local remedies used in conjunctivitis afford any relief. I then resorted to the salicylates internally and the symptoms, subjective and objective, in the course of about two weeks, disappeared.

In Case 3 the diagnosis might be questioned because some of the objective symptoms were absent and it being the first season. Case No. 1, however, was so striking that in the future I think it would be well to make an investigation into the condition of the blood and urine in these cases. The question might at least be asked, "Is vernal catarrh a local manifestation of some constitutional state?"

Abstracts from Recent Ophthalmic Literature.

BY EDWARD ADAMS SHUMWAY, M.D.

PHILADELPHIA.

The Phenomena Observed in Diseases of the Optical Lobes, with Especial Consideration of the Ocular Symptoms.—Arthur Becké (*Zeitschr. f. Augenheilk.*, March and April, 1904) contributes one of a series of articles on symptoms in the diseases of various portions of the brain, which are appearing from Prof. Bach's clinic in Marburg. At the close of the article, in which he follows closely Monakow's views on the subject, he collects a list of 175 cases of disease of the occipital lobe from the literature of the last 10 years, in 50 of which other parts of the brain were affected, either concomitantly or by direct communication from the occipital lobe. Twenty were of traumatic origin, in 45 tumors were present, and in the remaining 110 there were areas of softening or abscesses. As focal symptoms hemianopsia, hemiachromatopsia, alexia, optic aphasia and visual hallucinations were found. As distant symptoms, or those due to involvement of neighboring structures, hemiplegia, hemianesthesia, movements of the eyeballs and irritation of other cranial nerves appeared. Of the general symptoms of cerebral disease, choked disc and headache were most frequent, occasionally also vertigo, vomiting, stupefaction and disturbance of consciousness. Ocular symptoms were present in the 175 cases as follows:

Hemianopsia 151 times. It was usually unilateral, as often right sided as left sided. In 32 cases there was double hemianopsia, a central field (often very small) always remaining free, although the visual acuity was reduced. Of the remaining 24 cases 13 were totally blind, and in the other 11 cases in which this almost constant symptom of disease of the occipital lobe was not mentioned, the condition of the patients probably prevented a perimetric examination.

Hemiachromatopsia was present in about one-third of all the cases. *Choked disc* or optic neuritis was mentioned only 43 times; the eyeground was noted as normal in 38 cases (of the 175 cases, 110 were due to softening or to abscesses. Moreover, optic neuritis is a relatively late symptom of occipital lobe disease).

Mind blindness of all degrees, especially in the form of disturbance of orientation was noted in 42 cases. The latter is always

present where there was double hemianopsia, with retention of a small central field.

Alexia and *optic aphasia* appeared 33 times, and are to be explained as the result of injury to the deeper lying association fibres.

Visual hallucinations were present in almost one-third of the cases, as an associated symptom of hemianopsia. *Ocular movements*—(conjugate deviation toward the side affected)—were seen 8 times, but were probably due to involvement of the neighboring *gyrus angularis*, which is to be considered the center for associated eye movements.

Signs of general cerebral pressure were noted comparatively rarely: headache in 57 cases (nine times localized in the occipital region). Hemiplegia was mentioned 66 times, hemianesthesia 25 times, vertigo and vomiting were present in only a few cases.

In 75 per cent. of the cases the lesion affected the medial portions of the lobe. In six cases the lateral portions alone were involved, but as hemianopsia and other ocular symptoms were present also in these cases, the lateral portions of the lobes must be included in the visual sphere.

Paresis of the External Rectus and Superior Oblique as the Result of Intoxication from Atropin Instilled into the Eye.—

Prof. K. Baas (Freiburg i. Br.) (*Archiv f. Augenheilk.*, Feb. 1904) reports a case of paresis of the external rectus and superior oblique in a child, who had been treated by atropin instillations for progressive myopia. General symptoms in the form of throat disturbance, lack of appetite and restless sleep were present and the child had lost flesh. All other causative factors aside from the atropin intoxication could be excluded, and six weeks after removal of the atropin the double vision had practically disappeared. Ulthoff, in the last edition of the Graefe-Saemisch System, says that no cases of disturbance of the outer eye muscles from atropin poisoning have been reported, so that this case is probably unique.

Experimental and Clinical Contribution on the Action of Anilin Colors on the Eye.—

Kuwahara (*Arch. f. Augenheilk.*, Feb., 1904) reports three cases of severe ulceration of the cornea in children, due to the accidental introduction of small pieces of anilin pencils into the conjunctival sac. In two of the cases the ulcer perforated and partial staphyloma resulted; in the third the ulcer healed, leaving a large leucoma. Kuwahara instituted a number of experiments in rabbits' eyes, and his results, which confirm the experiments of Gräflin (*Zeitschr. f. Augenheilk.*, Sept., 1903),

were as follows: Certain anilin dyes and also their products may cause severe injury to the eye. In some cases there is marked swelling of the lids, intense inflammation of the conjunctiva, which may be diphtheritic in type, and may cause gangrene of the lids. The cornea is usually affected, and the severity of the keratitis varies from a slight opacity to complete destruction of the cornea, with plastic iridocyclitis. The human eye appears to react much less strongly to the anilin dye than the rabbit's eye, and the number of cases reported is still small. Nevertheless it is certain that the copying pencil in the hands of children may be an object of great danger for their eyes, and more attention should be directed to this form of injury than has been hitherto the case.

Concerning Subconjunctival Salt Injections and Injuries to the Eye by their Use: — Alexander (*Arch. f. Augenheilk.*, April, 1904) has observed three cases in which the subconjunctival injections of 5 per cent. to 10 per cent. solutions of sodium chlorid have had deleterious effects in the eye. Two showed adhesions between the conjunctiva and sclera, one partial gangrene of the subconjunctival tissue, both of which have been noted after sublimate injections, two presented infiltration of the cornea, and one opacities of the lens, which, however, cleared up later. These accidents are rare, and Alexander does not think that we have found as yet any lymphagogue which can replace this method. Dionin is very efficient, but has the disadvantage that the eye becomes used to it quickly, and the effective chemosis may not reappear until some time after the drug has been discontinued, while the injections can be made every two or three days.

The Diagnostic and Prognostic Importance of the Retinal Lesions in Nephritis. — El-chnig (*Wiener mediz. Wochenschr.*, 1904, 11- and 12) has examined the eyegrounds of the cases of nephritis in three of the Vienna clinics, and found the following results in 199 cases:

	PER CENT.
Normal retinal condition in 74 cases.....	37.5
Disease of the blood-vessel walls in 60 cases.....	30.0
Slight atypical retinitis in 15 cases.....	7.5
Severe atypical retinitis in 24 cases.....	12.0
Typical retinitis albuminurica in 13 cases.....	6.5
Retino-choroiditis albuminurica in 6 cases.....	3.0
Other retinal diseases in 7 cases.....	3.5

Neglecting the simpler vessel changes there remained 32.5 per cent. of severe retinal inflammation, an unexpectedly high percent-

age. Of the typical retinitis cases 23 per cent. died within six weeks, 31 per cent. in six months, those with retino-choroiditis all within six weeks. Although the retinal changes are not absolutely sure signs of a nephritis, and are still less characteristic for its various forms, they nevertheless possess a great prognostic value, their intensity being parallel with that of the nephritis. (Rev. in *Wochenschr. f. Ther. u. Hyg. des Auges.*, May 26, 1904.)

Concerning Fungous Concrements in the Lachrymal Canals.—Auerbach (*Archiv f. Augenheilk.*, April, 1904) reports a case of actinomycosis of the lower canaliculus, and reviews the literature of the subject. The first case was reported by Gracile in the first volume of his Archives. Since then between 40 and 50 cases have been described. Before the time of 1880 the leptothrix was given as the cause; during the period between 1880 and 1890 all cases were ascribed to the streptothrix, and since 1890 actinomyces has been the only organism found. Auerbach believes that the earlier diagnoses were wrong, and that probably actinomyces has been the cause of all the cases hitherto described, and that it alone can produce this clinical picture. In the majority of cases the patients have been women, and the concrement is usually found in the lower canaliculus. Curiously, very few cases have been reported in French literature, although bacteriology has always been far advanced in France, and such a condition would hardly have escaped observation had it been present.

Correspondence.

A SIMPLE INSTRUMENT FOR REMOVING GRANULATION IN TRACHOMA.

AN ANSWER TO THE REMARKS BY DR. E. H. OPPENHEIMER (BERLIN)
IN THE OCTOBER, 1904, NUMBER REGARDING "A SIMPLE INSTRUMENT FOR REMOVING GRANULATIONS IN TRACHOMA,"
PUBLISHED IN THE AUGUST, 1904, NUMBER.

The writer, in this first article, after stating that his and Dr. Kuhnt's instrument involved a somewhat similar principle, enumerated the advantages of his own, which are the following: (See August number.)

"First. The perforations are of good size.

"Second. The margins of the same are sharp and, therefore, cut the tissue better than when dull.

"Third. The perforations are very close together in either one or both blades. If, on applying the forceps, there is much intervening space between these perforations, then the lid will be merely compressed and very little tissue will be forced but a short distance up into the perforations, thus thwarting the very object desired.

"Fourth. Great pressure can be made with this instrument.

"Fifth. The end of the small blade is more readily placed in the proper position under the lids."

As the lower cul-de-sac can be inspected without eversion, the forceps are, of course, applied to the lower lid without everting it—one blade being on the skin and the other on the conjunctival surface of the lid. However, this is not true in the upper fornix and, therefore, this is not the best method of applying it to the upper lid, which should be everted just as much as for removing any foreign body lodged under the upper lid or in the upper fornix.

Usually the granulations are segregated into clumps, especially in the fornices; and often the tarsal conjunctiva is not much involved, especially in certain regions. If the upper lid is not everted normal and diseased parts are treated alike—working in the dark. Whereas, when the lid is turned, the perforated blade being in the fornix, the other on the tarsal conjunctiva, or vice versa, the operator can see exactly what he is doing. He can also operate on the

fornix conjunctiva much better when the lid is everted, because otherwise it is impossible to properly get into the fornix.

The writer is much surprised that any one should infer from his article that any stroking or milking of the conjunctiva should be practiced with this instrument as is done with other instruments—as Knapp's roller forceps. The operator should exercise care that the forceps are closed straight down onto the lid and not allowed to slip or slide, as this would unnecessarily tear the mucous membrane—removing one of the chief advantages of this over other instruments.

MARK D. STEVENSON.

Reports of Societies.

CHICAGO OPHTHALMOLOGICAL SOCIETY.

THE PRESIDENT, DR. DODD, IN THE CHAIR.

A CASE OF CHRONIC IRITIS COMPLICATED BY SLOW GROWING TUMORS
AT ROOT OF IRIS: PROBABLY TUBERCULAR.

Presented by Dr. Gamble, as follows:

Mr. S., aged 25, clerk. Family history negative as regards TB or cancer. Presents no evidence of syphilis. Has had cough for several months, and says he only coughs in the morning. There is some expectoration. The pulse and temperature have been examined on different occasions, the latter varying from 99 to 99½; pulse 80. He says he feels well and works every day. His weight has not varied materially. In the summer it was off two pounds, but now he says he has gained three pounds over the summer weight. He was sent to me, on account of a redness of his left eye, by Dr. Robert G. McCarthy of this city. This eye has been more or less red at times since last April, never having been entirely free from redness at any time since he first had the trouble. I examined the eye on the 24th of August and found ciliary injection, not marked, pupil responding poorly to light and dilated irregularly under atropin. A reddish, transparent growth, the size of the head of a pin at the root of the iris in tempero inferior region. The growth is now four or five times as large as it was then. The iris was discolored then as now and some haziness of vitreous was present. I made a tentative diagnosis of tubercular iritis and advised that the sputum be examined. Six examinations of the sputum were made with a negative report in each instance. The physical examination also was negative. K. I. and ung. hydrarg. have each been used without result. The original tumor is growing, being four or five times its original size, and four other similar growths have recently appeared in root of iris, apparently growing from ligamentum pectinatum. Disturbance of Descemet's membrane has lately become manifest—not the classical triangular arrangement of deposits, as in desceminitis. The original tumor has become vascular only during the past week. It is now opaque. It is probable that the iritis existed before the growth became apparent. It would seem that this is a case of primary tuberculosis of the iris.

Dr. Bulson of Ft. Wayne suggested that an injection of tuberculin be given to clear up the diagnosis.

Dr. Thos. Faith called attention to a case of spongy iritis he had shown the society, in which he had a decided reaction from tuberculin, and yet the patient recovered.

Dr. Bulson said this did not prove the patient did not have a mild or decided form of tuberculosis. They do have it and get well. Syphilis having been excluded, a decided reaction from the tuberculin should establish the diagnosis.

Dr. Brown called attention to an article in the last number of the *Arch. of Ophth.* by von Hippel on the use of tuberculin as a diagnostic and therapeutic agent in tuberculosis of the anterior segment of the eye. Von Hippel has so treated twenty-three cases in the past ten years and gives detailed clinical histories of his last ten cases, treated by new tuberculin T. R., without untoward effects, all either improved, arrested or cured with subsequent observation periods of one-half to nine years. He injects 1-500 mg. subcutaneously every other day, and gradually increases this dosage up to one mg. over a period extending from six weeks to six months, he insisting strongly upon a small dosage at first and a long continued treatment.

Dr. Gamble, closing the discussion, said he was glad of what had been said, as he did not like to decide the question of using tuberculin.

PEMPHIGUS OF BOTH EYES.

This case was presented by Dr. Casey A. Wood, who said: While pemphigus of the conjunctiva, sclera and cornea is extremely rare, when it does occur seriously it affects the eye, it is almost always associated with shrinking of the sac and frequently with entropion, while the glazed state of the cornea is made worse by the rubbing of the lashes over the corneal tissue. The case was first seen by me in August, 1903, in my St. Luke's Clinic. The history given was that the trouble first commenced six years ago, and at the same time there appeared blisters over the entire body. This eruption did not cease after the first outbreak, but the child has since continued to have vesicles and blebs on various parts of her body. They appear on occasions especially on the legs, face and eyeball. There is as a consequence of several bulbar attacks marked shrinking of all parts of the eyeball, a decided entropion with the atrophy of the conjunctiva and other palpebral tissues. The edges are rolled under, and none of the operations in the past year or so has been of avail. In all cases the entropion returned and the case was as bad

as before. The skin-like appearance of the cornea grows worse as the patient grows older. When he first saw her Dr. Wood operated on the one useful eye with the idea of saving the sight of it. He did a modified Hotz operation on the upper and a simple skin transplantation on the lower lid. She was decidedly better for a time, but once more there is entropion. He would like advice as to what should now be done. His present plan is to scalp both the upper and lower lids by the usual intermarginal incisions and transplant skin in the interval. The vision of the right eye is now about $1/5$; when the patient was first seen (about a year ago) it was somewhat better than that. Vision in the left eye is about the counting of fingers. It is better, perhaps, however, to-night, due probably to the use of an antiseptic eye lotion and faithful, daily epilation of the eye lashes. Dr. Wood had seen but two other such cases—one many years ago in Moorfields, but was not cured at the end of two years even after several operations. He believes this patient will continue to have pemphigus blebs on the eyeball and the better eye will eventually be as bad as the other.

Discussing Dr. Wood's case, Dr. Pinckard said he had never seen a case exactly like this, but the one case similar that he had observed eventually came to the scalping operation. In this case the lashes have turned in much further than usually seen in granular lids and they are digging into the cornea. Of course, it may be said that to destroy a thing is not good surgery, but if we cannot restore it we had best destroy.

Dr. Thos. Faith asked if the Arlt-Jaesche operation in such a case would not accomplish the same as scalping.

Dr. Dodd said he had had something to do with a case of the same nature less than a year ago. He had not been able to follow it up and does not know how it turned out. The boy was seven or eight years of age, and this had been going on for four years. The left eye was entirely destroyed and had been enucleated some time previously, and two operations for symblepharon on the right eyelid had been done. The lower half of the right cornea was almost completely opaque and the conjunctiva badly shrunk above and below. The lower lid had hardly any movement at all. He was induced to do a grafting operation on the case, and, although the work was done as he had done it before in a number of others, the result was unsatisfactory. These cases are very rare, and had been seen but once besides this by him. Their rarity is the only good to be said of them. He thought the only thing to do would be to remove these lashes and leave the smoothest surface possible. Simply scalping and leaving a scar along the margin of the lid would be

the only thing unless a mucous membrane graft could be made to grow there.

Dr. Colburn said he would anesthetize the patient and use the electric needle. In two or three cases he had had with shrinking of the conjunctiva and the lashes in-turned he had destroyed the latter with electrolysis with good results.

Dr. Wood, closing the discussion, said that it was easy to see that the scalping operation was not an ideal one. Supposing he did employ the Arlt-Jaeschke plan, the same condition would again confront him. In scalping he would split the lid and insert skin because, in spite of all that has been urged against it, the procedure gives a fairly good lid edge. Dr. Colburn would probably not suggest the electric needle if he had seen this case at its worst. There are a great many irregularly situated hairs, some of them growing on the bulbar aspect of the lid a quarter of an inch from the margin, and it would be impracticable to use electrolysis there.

Dr. H. B. Young presented (a) Microscopic Slide and Gross Specimen of Eye Affected with Ciliary Sarcoma, and (b) Notes and Photographs of Case of Congenital Monocular Ptosis.

In the discussion following, Dr. Casey Wood asked if there had been any recurrence of the tumor in the orbit, to which Dr. Young replied there had not. Dr. Wood exhibited a microscopical specimen of tumor of the choroid, which he said would illustrate the fact that the further away the tumor is from the nerve head and ciliary body the less likely is there to be recurrence of the disease. Ciliary tumors recur easily. He was satisfied that the *x*-ray should always be used as an after-treatment of enucleation or orbital evisceration for several months.

Dr. Colburn said the case of sarcoma recalled one he had two years ago. At the time of operation both urinalysis and physical examination were made, but nothing discovered. The operation was in June, and the man died in December of sarcoma of the lip. The case was reported to the society at the time. A case was seen recently in a young girl, probably the result of trauma, where the wound was received from a slung shot, and there was considerable hemorrhage at the time. The tumor in the ciliary region assumed considerable proportions. On enucleation it was pronounced a sarcoma.

Dr. Young said the case was not one of ptosis, purely speaking; it is present only when looking up. There is just a suggestion of movement of the eye upward. He can open his eye, as shown in picture No. 3. He throws the head back a little, and there is a little muscular contraction. He turns his head to look down. He

cannot affect it by opening his mouth. The case was brought to him for relief and he had said to the parents that when they were ready for experimental surgery he was ready to try it, but no encouragement was offered. It was evident the members of the society did not feel that there is much encouragement.

Dr. Remmer read a paper entitled Report of Three Cases of Vernal Catarrh. [See this number of OPHTHALMIC RECORD.]

Dr. Bulson referred to reports of cures of so-called vernal catarrhs by the use of x-ray treatment and asked if further reports had been made. Believed the essayist was correct in that the general condition should be carefully studied in each case. He had long since given up the idea of curing these cases.

Dr. Young had two cases under advisement, but can only alleviate the urgent symptoms by calomel and adrenalin internally.

Dr. Remmen, closing discussion, said in most of these cases there seems to be a uric acid diathesis. He finds relief from the early use of salicylates in other eye diseases.

ECTROPION.

Report of case relieved by removal of tarsus. Presented by Dr. Thos. Faith.

Discussion.—Dr. Wilder agreed that where the deformity is in the tarsus it is proper to dissect it out, just as one would dissect out cicatricial tissue from any other part that is being deformed by these excessive contractions. In the matter of technique thinks it preferable to take the tarsus from the other side and put in stitches if necessary, as it is easier to accomplish this by approaching from the cutaneous side.

Dr. Brown said that Schieck has lately reported anatomical studies of five cases of vernal catarrh in which the nodes were made up largely of elastic tissue directly continuous with that of the underlying tarsus. The limbus nodes were likewise hypertrophies of the richly distributed elastic tissue recently shown and normally found here.

Dr. Colburn had seen a similar case, where the wound extended up into the hair, and the contractions had left the lid split open; patient could not shut the eye, and there was a good deal of thickening of the conjunctiva. Instead of trying to include the tarsus in cutting out the cicatricial tissue, he dissected back as far as possible and freed the conjunctiva from the tarsus and passed the stitches through so as to leave the tarsus free. The lid was drawn down and anchored to the border of the periosteum to hold it in

position and there was very satisfactory result, without entropion.

Dr. Faith, closing discussion, said that he had meant to impress the fact that after ectropion had existed for a while the exposure and irritation resulting produces a hypertrophy of the conjunctiva, and for that reason, if the case is operated early, it is possible the success would be greater. In this case he purposely left the lower border of the tarsus to preserve the border of the lid and there was no untoward result. Is aware that if he had not done the previous work it would not have succeeded, but believes in some cases early, before the atrophic process sets in, if we would combine the excision of the tarsus we might succeed oftener.

F. A. PHILLIPS, Secy.

SECTION ON OPHTHALMOLOGY, COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting, October 18, 1904.

Dr. S. D. Risley, Chairman, presiding.

Dr. S. D. Risley presented for study a patient first seen at the Wills Hospital at seven years of age, blind in the right eye from pseudo-glioma, said to have followed an attack of some pulmonary affection. At that time there was present moderate ciliary injection, which subsided under treatment. Patient was not seen again for eight years, when she returned with the eye painful, injected, anterior chamber shallow, pupil occluded, tension increased, and a profuse collection of glistening, amber-colored flakes, probably of cholesterin, in the anterior chamber. Many of these were deposited in the lower angle and others distributed over the surface of the iris. The pain and irritation persisted under all usual methods of treatment and well-marked symptoms of sympathetic irritation came on. Thinking that the cholesterin crystals might be a factor in the persistent irritation, Dr. Risley decided to remove them. A bent keratome was introduced at the inferior limbus of the cornea, the iris seized at the pupillary border, and a small irregular portion removed. The tip of the Lippincott irrigator was then introduced and the anterior chamber thoroughly washed with warm physiologic salt solution. No marked reaction followed, but cold compresses and atropia were employed intermittently for a number of weeks. The eye has been white and comfortable for more than three months and no irritation of the fellow-eye.

Dr. Wm. Campbell Posey reported a case of Parinaud's conjunctivitis, which occurred in the right eye of an army surgeon who had been in charge of one of the hospitals in Porto Rico at the time

of the Spanish War. There was marked swelling of the lids, and thickening of the conjunctiva, with large granulations, hanging by distinct pedicles from the fornix of both lids. Between these granulations there were erosions and smaller yellowish granulations. The cornea was unaffected and there was but slight muco-purulent discharge. About a week after the ocular symptoms first manifested themselves the pre-auricular and later the parotid and submaxillary and retromaxillary glands of the same side as the affected eye became swollen and indurated, requiring operation to give exit to pus. The ocular condition persisted for months, resisting the usual forms of treatment with antiseptic lotions, cauterizations with silver and copper, and excision of the larger granulations. The general condition of the patient was one of depression, with slight fever. Later, symptoms of a severe nature developed, which caused the attending physicians to render a diagnosis of Malta fever.

The writer pointed out that although Parinaud had described this form of conjunctivitis 15 years previously, but 23 cases of the disease have been recorded. He said that, although the disease is undoubtedly infective in origin, bacteriological studies had thus far been negative. Parinaud was of the opinion that the disease was contracted from decayed animal matter, and suggested that there might be a connection with foot and mouth disease.

The pathological anatomy of the affection is still in doubt, Gifford believing that the infection starts with the formation of small abscesses in or below the conjunctiva, and that the granulations develop from the edges of some of the ulcerations which are left after the breaking of the abscesses. Verhoeff and Derby, who have made the most recent contribution to the study of this form of conjunctivitis, believe, on the other hand, that the diseased process is a superficial one, being confined almost exclusively to the subconjunctival tissue, consisting essentially in cell necrosis, which is followed by proliferation of the connective tissue.

Dr. A. G. Thomson exhibited a case of Parinaud's conjunctivitis in a colored child, aged 3 years, from the Children's Hospital. Three weeks previous to entering the hospital swelling developed of posterior cervical glands, which extended rapidly to submaxillary, pre-auricular and glands overlying parotid, the swelling later extending to eyelids, completely closing them in a day. A few days later a thick, yellowish discharge from the conjunctiva appeared. Upon admittance to hospital, the eyelids of both eyes were swollen and tense, the palpebral conjunctiva chemosed and protruding, the follicles greatly enlarged, some broken down and covered with a

thick purulent secretion. The cornea was healthy, and only a small portion of ocular conjunctiva up and out chemotic. Bacterial examination showed no evidence of tubercle. No history of trachoma.

Applications of argyrol, 20 per cent., the use of compresses and frequent cleansing with boric acid solution caused reduced swelling of glands, and decrease in the discharge. The follicles are still somewhat enlarged and a few broken down, and on the whole the case resembled convalescing acute trachoma.

There was nothing shown regarding the etiology, with exception of the fact that the father worked in a fertilizing factory.

Discussion.—Dr. Hansell referred to a severe type of conjunctival inflammation now under observation in a medical student which presented none of the ocular symptoms seen in Parinaud's disease, although it resisted all forms of treatment and was associated with swelling over the parotid gland. In response to an inquiry of the Chairman, Dr. Thomson stated that the swelling of the glands in his case preceded the ocular disease, although usually the eyes are affected first.

Dr. Posey said that last winter he had had an opportunity of seeing another case of the disease, also a physician, whose right eye became affected in a manner typical of this form of conjunctivitis. The swelling of the lids and the development of the polypoid granulation was, however, excessive, and the cornea became ulcerated, probably as a result of mechanical irritation. The course of the case was exceedingly chronic, as he understood that even now, a year after the initial symptoms had appeared, the granulations were still present. He thought it of interest to note in connection with the pathogenesis of Parinaud's conjunctivitis, that in this instance the physician was a rectal specialist, that the first case occurred in a surgeon in hospital practice in Porto Rico, where the sanitary arrangements were most imperfect, and that the father of the child just presented by Dr. Thomson was employed in handling fertilizer. Although bacteriological studies have failed to isolate the germ of this disease, he thought that the glandular involvement and the symptoms of general systemic depression all pointed to its being an infective process. He thought that the more frequent involvement of the right eye indicated that the toxic substance originating the inflammation was probably carried to the eye by the hand, and that although bacteriological proof was wanting, he believed the coincidence of a possible source of animal infection to be present in too many cases not to admit the probability of the disease being, as Parinaud first stated, originated in that way.

Drs. G. E. de Schweinitz and Edward A. Shumway exhibited the specimens of a conglomerate tubercle of the choroid, presenting all the typical histological characteristics, and in which they had found tubercle bacilli, and from which inoculations had produced tuberculosis of the iris of a rabbit with excessive development of tubercle bacilli. The tuberculous process had burst through the sclera in two portions, and had involved the optic nerve, so that its nervous tissue was entirely replaced with necrotic tissue. The specimen had been removed from a four-year-old colored child, who presented the general physical signs of tuberculosis of the lymph glands, and who died with the symptoms of tubercular involvement of the meninges. Clinically the appearances of the eye before its removal were these: Marked proptosis, displacement of the eye downward and outward, bulging and superficial necrosis of the sclera below and to the outer side obliteration of the anterior chamber, discoloration of the iris and a yellowish white mass appearing through the pupil space. On removal the tumor deposit was found to occupy the entire choroid in a layer 3 to 4 mm. thick posteriorly and less produced anteriorly. There was one extra-scleral nodule just beside the optic nerve, which was enormously swollen by the infiltrated process, and therefore accounted for the direct proptosis of the eyeball.

Discussion.—Dr. Shumway spoke of the comparative rarity of reported cases of conglomerate tubercle of the choroid, and of the fact that it has been said to cause hypotension, in place of glaucoma. Such was not the condition in the present case, nor in the majority of cases which have been reported since Siebert's article in 1890. The literature of the subject had been recently reviewed by Dupuy-Dutemps in the *Archives d'Ophthalmologie*, and the following points were given to assist in diagnosing the condition from glioma of the retina, with which it is most likely to be confounded: (1) Age of the patient. Tubercle is usually found between the ages of 6 and 20 years, sometimes later; glioma usually at an earlier period. (2) The appearance of ectasia and perforation was more rapid in tubercle. (3) Iritis appears earlier, and nodules may be seen in the iris. (4) There may be other signs of tuberculosis in the child, and a bad family history. (5) Response to a tuberculin test would be a positive proof. Dr. Posey said that he had recently reported two cases of intra-ocular tuberculosis, one of which was a solitary tumor of the choroid. As in the case just

referred to by Shumway, this case showed glaucomatous symptoms. He spoke of the difficulty in diagnosing tuberculous growths in the choroid, the media being usually more or less opaque when the case comes first under observation. Many cases are thought to be syphilitic and the diagnosis is only made by their autopsy.

Dr. H. F. Hansell presented a note on some forms of muscular inco-ordination, and commented on the universal teaching that muscular anomalies depend in the majority of cases upon defects of refraction and agreed that the essential factor in the treatment is the preliminary correction of ametropia. The irregular or bizarre forms of muscular insufficiencies were classed as: (1) Non-ametropic squint, latent or manifest, and (2) squint, latent or manifest, against the rule. Many of the cases that were assumed to be regular would prove to be the contrary if the examiner would take the precaution to apply the usual tests before each eye and not be satisfied with the findings as determined by testing one eye only. The diagnosis may be incomplete or incorrect unless it is known which is the fixing eye at the time of the examination and the deviation of each eye learned, and then the differences between the results considered in their relation to both diagnosis and treatment. While it is true that primarily all functional muscular anomalies are defects in coordination, it should be accepted as equally true that the defects are materially modified by the patient's unconscious predilection for one or the other eye even in cases of binocular single vision. Variations in degree will frequently be discovered both in the tendencies and the actual turnings in all the forms of imbalance. The treatment whether optical or surgical is modified to conform to the variations. Thus, the stronger prism is placed before the apparently more deviating eye or the greater effect of tenotomy or advancement secured upon the same eye. Muscular anomalies against the rule include divergence in H, convergence in M, upward deviation of the squinting eye in M, and downward deviation in H. The oblique muscles must not be left out of consideration in the management of such cases. We are inclined to lay stress on the straight muscles because of our greater familiarity with their action and because of their accessibility for operation. The individual action of a single muscle enters less into the problem than the coordinated action of all the muscles.

WILLIAM M. SWEET, M.D.,

Clerk of Section.

COLORADO OPHTHALMOLOGICAL SOCIETY.

Meeting in Denver, October 15, 1904.

Dr. Edward Jackson, Chairman, presiding.

RETINITIS PROLIFERANS.

CASE I.—Dr. Walter Hilliard: This patient, a man of 30 years, sustained a blow on the right eye by the open hand of a comrade, on Sept. 10, 1904. The blow gave little pain, but in a few minutes he discovered the eye was nearly blind. After ten days, patient consulted a physician and four days later consulted me. I found the vision to be 2/200. Tension normal, slight tenderness over ciliary region; cornea, aqueous and lens clear; iris healthy; vitreous contained numerous large, dark red movable opacities; fundus seen very indistinctly, the disc had a wooly appearance. In inner upper quadrant of the fundus there was a yellowish white streak beginning at lower margin of disc and extending obliquely upward and inward almost to the extreme visible limit. The streak is seen best with a +7 D. The treatment comprised atropin and bandage for the injured eye and smoked glass for the fellow eye. Kept the system quiet and advised the avoidance of stimulants. To-day vision is 20/70, tension normal, no tenderness, vitreous almost clear of movable opacities, disc indistinctly seen, macular region hazy, numerous small retinal hemorrhages. The yellowish white streak in the vitreous is now a gray-white mass of vascularized connective tissue projecting into the vitreous. The retinal vessels do not run over the mass. I believe there was a rupture of both choroid and retina at time of blow. The appearance now is that of retinitis proliferans.

Discussion.—Dr. Jackson thought on first inspection it was a detached retina with an exudate, but on closer inspection I believe it to be a retinitis proliferans, remains of hemorrhage and is 8 D. in front of level of fundus. The white tissue curves around like a detached choroid, but distance in front excludes that.

Dr. Black said the case presents the appearance of choroidal rupture with an uncommon extravasation of blood. I think the hemorrhage came from behind, hence the choroid, if from ciliary it would be in anterior segment.

Dr. Bane showed a case of retinitis proliferans, the result of traumatism. The inflammatory exudate is a beautiful illustration of this disease. The deposit is well forward of the vitreous. At present time no break in choroid is visible.

Dr. Hilliard said he had been watching the case for four weeks. The blood has disappeared day by day in a marvelous way.

CASE 2.—Dr. Hilliard. Mrs. A., aged 45, white, married, in fine health, consulted me Sept. 22, 1903, for examination for glasses. V.R. E. 20/200, with—.75 S. \odot +1.75 C. 90° 20/20. L. E. 20/100, with +.50 S. \odot +1.50 C. 90° 20/20+. Eyeballs and appendages of normal appearance. Examination with ophthalmoscope revealed numerous movable, glistening, yellowish opacities in the vitreous of the right eye—synchysis scintillans. Left eye normal. Examination to-day, Oct. 15, 1904, reveals no change whatever since Sept. 22, 1903. Judging from my experience with these cases I should say that synchysis scintillans in elderly people never seriously interferes with vision.

Discussion.—Dr. Black: The first case of the kind I have seen in fifteen years. They are rare.

Dr. Jackson: Do not know cause of this trouble. We seldom see them.

GLAUCOMA.

Dr. Wm. C. Bane presented a case of glaucoma. Mrs. O. S. B., age 46 years, came under my care Sept. 12, 1904. She gave a history of R. E. becoming inflamed two weeks previously, and complained of sticking pains in R. E. and right side of head; also stated she had pain in eye two or three years ago, lasting a day or two. Examination revealed moderate circum-corneal injection, surface of cornea presented a steamy appearance and upper half of epithelial layer was rough. Anterior chamber very shallow, the iris resting against the cornea, pupil large and irregular in outline, media too cloudy to permit view of fundus. Tension +2. Vision equalled light perception. L. E. had been painful for a few days, but was free from congestion; tension +; pupil small and regular in outline, anterior chamber shallow, no cupping of disc. Patient was put on sod. salicylate gr. xv every four hours. For the eye, eserine gr. $\frac{1}{4}$, dionin gr. xxv, aqua dist. $\bar{\text{z}}$ iv; two drops t. i. d. At present the eye is but slightly congested, media clear enough to allow fair view of the fundus. The disc does not show the cupping of glaucoma. She has had pain in the R. E. from time to time during the past six weeks. The L. E. has not changed; the pupil is small, anterior chamber shallow and no cupping of the disc. Patient has refused to enter hospital and I will not consent to operate in her present quarters—a filthy tent. The vision of right eye has improved from light perception to 1/60; vision with the left eye is 6/12. The fields do not show the nasal narrowing characteristic of glaucoma.

Discussion.—Dr. Black: I consider it a very desperate case,

and inasmuch as eserin has not contracted the pupil, doubt if any operative procedure would be beneficial. As the left eye is similarly affected would advise an iridectomy at once.

Dr. Hilliard could see no cupping in L. E. but considers the condition of the R. E. very serious.

Dr. Neeper: I consider it a case for operation upon the R. E. and probably the L. E. Think it would be better to use dionin less frequently and eserin oftener.

Dr. Jackson: I agree with Dr. Neeper's last statement and think an iridectomy advisable.

LACERATION OF THE EYEBALL.

Dr. Jackson presented a case showing the results of severe laceration of the eyeball. Three years ago a boy, then aged 11, was struck by a rock, cutting the brow and lids and making a branching tear across the cornea. The lens presented in the wound for several days and then escaped. The cornea became greatly contracted and the eye quiet. Two years later a small semi-transparent bulging had appeared in the corneal scar. This had extended downward and at the end of one year protruded about 5 mm. and measured 10 mm. in the vertical and 16 in the horizontal direction. The tension of the eyeball was normal or very slightly elevated, and there remained light perception. The cyst seemed to have formed between the layers of the sclera. Its posterior wall could readily be demonstrated by local illumination. The conjunctiva was freely movable over all parts of it except the corneal scar. The development of the cyst had been attended with occasional shooting pains and moderate hyperemia about its margin.

Discussion.—Dr. Bane: The growth is a cyst, presumably connected with the anterior chamber, which should be removed and communication obliterated. If neglected, the walls are likely to become thin and rupture.

Dr. Neeper: I think it not a true cyst; rather a staphylomatous condition communicating with interior of the eye and if opened, serious results would follow. Would advise cautery.

Dr. Hilliard: Am of the opinion it is staphylomatous rather than cystic and fear it communicates with the interior of the eye.

Dr. Stevens: I question if it communicates with the eyeball. It might be an element of transplantation from the skin or the iris.

Dr. Black: Two and one-half or three years ago I had a case like this except the cyst was above the cornea. The man had eye injured by a file. I took the patient to the hospital, opened the cyst and found a fistulous tract opening into the anterior chamber

at the sclero-corneal junction, where file had penetrated eye. I picked up edges of sclera and stitched it. There has been no recurrence of the cyst to my knowledge. To my mind, this case is a cavity communicating with anterior chamber and think enucleation is the thing to do. Do not approve of cautery.

Dr. Jackson: As there is light perception I do not urge enucleation. I have used atropin and 1-1000 trikrisol. I think I shall open cyst and remove the two masses that have the appearance of part of uveal tract and a part of the wall, am not certain I will stitch wound.

HANCOCK'S OPERATION FOR GLAUCOMA.

Dr. Jackson presented a patient showing the effects of Hancock's operation for glaucoma. A man, aged 68, with double cataract, which had been developing for six years, had extraction done on the right eye and subsequent needling, giving vision of $4/5+$. This eye remained sound. Two years after the extraction the left eye had become painful and inflamed. After it had been under treatment for over a month in another city, he returned with discolored iris, posterior synechia, pupil 2.5 mm. in diameter, specks and blotches of exudate on Decemet's membrane, and doubtful increase of tension. Two days later he had a distinct glaucomatous attack with T.+1 or higher. His general condition was very bad, pulse 160 and upward, intermitting about every third beat. General anesthesia seemed dangerous, and the eye so badly inflamed that the usual glaucoma operations under local anesthesia were out of the question. The stab incision of Hancock's operation from the sclero-corneal junction 6 mm. downward was made. —T. was at once established. The man's condition improved the next day and he slept eleven hours that night. He remained under observation but four days during which —T. continued. Now, after five months, he had returned. The scar was plainly visible, with some bulging of the surrounding region. Tension was about normal and sensibility of the cornea the same as that of the other eye. He had suffered repeated attacks of uveal inflammation.

Discussion.—Dr. Bane: A very interesting case; the first one I have seen upon which the Hancock operation had been done.

Dr. Hilliard: I wish to thank Dr. Jackson for so interesting a case. The first time I have seen Hancock's operation.

Dr. Libby: Saw the case 36 hours after the operation. Patient was greatly relieved, but not much can be accomplished owing to bad habits of patient.

Dr. Jackson: The case had been bad for one month before coming under my care. He was using chloral in large quantities.

STAINING OF IRIS.

Dr. Hess reported this case: The man was a miner. Five days after the operation I used argyrol on cotton applicator to the inflamed conjunctiva and used it daily for three days. The ninth day the patient came to the office with iris of operated eye brown, the fellow iris a blue-gray. I want to know if this staining is blood or argyrol?

Discussion.—Dr. Black: I think the only indication for argyrol is in dacryocystitis and then use it 25 or 30 per cent. It is no good in conjunctivitis.

Dr. Neeper: Whenever argentum nitrate is indicated I approve of argyrol.

Dr. Bancroft: I have used argyrol, but the action is nil, and when I want results I use argentum nitrate in 1 to 2 per cent. solution.

ILL EFFECTS FROM GAS ANESTHESIA.

Dr. Melville Black reported a case of convergent strabismus in a child. Patient came under my care three weeks ago. To please the parents I did the operation in my office under gas anesthesia, administered by a dentist. After three or four minutes the operation was done, although child was unsteady and eye rigid. Patient came from under the anesthetic two or three times before operation was finished. Then the child suddenly became pale, hands and feet cold, surface clammy and the heart beats from 115 to 200 per minute. Nitrite of amyl was administered and 1.50 gr. strychnia was given hypodermically. In two or three minutes child appeared to be in tetanic spasms, as if too much strychnin had been given, yet the dose was but 1.50 of a grain. After fifteen minutes child grew worse and a neurologist was called who administered 1/400 of a grain of hyoscin. In five minutes convulsions ceased, child got warm, face normal, but continued in an unconscious condition until about 4 p. m., and then roused sufficiently to say only a few words. The next morning the parents reported the child as unconscious nearly all night. Gas is a most unsatisfactory anesthetic; takes up too much room, is unreliable and not the anesthetic for eye work.

Discussion.—Dr. Libby: Saw the child; the pupils, when child became cold, were widely dilated and remained so until the effects of the hyoscin had worn off.

Dr. Neeper: I would not try gas in eye operations.

Dr. Jackson: An unusual history of unconsciousness after stopping of gas.

GONORRHEAL OPHTHALMIA.

Dr. Libby reported a case of gonorrheal ophthalmia in left eye of girl, age 10, who contracted the disease from sister, 7 years old, who had a gonorrheal discharge for four months without treatment. The case came under my care Sept. 1, 1904, one week after infection. There was a profuse muco-purulent discharge, upper lid hypertrophied, with appearance of entropion. Treatment consisted of cold compresses first, frequent cleansing with boric acid, every hour for first ten days, then every two or three hours. Also used 4 per cent. protargol in eye twice daily. Recovery complete at end of third week. V. normal; no sequelæ.

GLAUCOMA.

Dr. Stevens reported three cases of glaucoma seen since the April meeting of the society.

CASE 1.—Woman, 73 years old. Right eye blind some years. An oculist here told her she had a disease which had produced blindness. Another doctor was consulted and prescribed for neuralgia. When I saw her the cornea was milky white and so dense I thought it a leucoma. She informed me it had not been hurt and only looked like that for 24 hours. The iris not visible, T.+, patient vomiting. Under chloroform I did an iridectomy; when incision was made the lens at once escaped. The cornea became normal in color immediately after incision, eye became quiet, no pain. At end of two weeks I was sent for, eye being painful and inflamed, conjunctiva chemotic, iris black, T. normal. I thought there was a growth and advised removal. The patient finally consented. That night patient got easy and would not have eye removed. I never saw a cornea in a glaucomatous eye present this dense leucomatous condition.

CASE 2.—Merchant; developed pain in head, failing vision. Consulted an oculist here who changed his glasses many times and twice under atropin. Patient still complained of pain in eyes. The doctor then advised a trip, and the patient, a German, decided to go to Germany. On reaching Hamburg he consulted an oculist who diagnosed the trouble glaucoma, and did a double iridectomy on the following day. Correcting glasses were ordered. The patient improved and thought himself well. After a time he returned to Denver and came under my care. Complained of pain in eyes and headache. Treatment, sod. salicylate. For the eyes, eserine gr $\frac{1}{4}$ —5i, and advised wearing glasses constantly. Still using the

medicine. He has the most striking cupping of the discs I have ever seen. Vision improved since the operation.

CASE 3.—A young woman from Kansas, refracted two months before under a mydriatic. History of pain in the eyes. Examination revealed hyperopic astigmatism of 2 D. against the rule, T.+1 in each eye, well marked glaucoma, field contracted, nasal side especially diminished.

ABSORPTION TREATMENT FOR CATARACT.

Dr. Neepor reported a case that came under his observation recently that had been submitted to the so-called absorption treatment for cataract, which had resulted in symblepharon, ectropion and occlusion of the lachrymal duct. Would like to have all cases that have been given the absorption treatment, that come under the observation of the members of this society, collated and reported to the State Society.

WILLIAM C. BANE,
Secretary.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Thursday, October 20, 1904.

A. Stanford Morton, F.R.C.S., Vice-President, in the chair.

BLOOD VESSELS OF OPTIC DISC.

Mr. Nettleship communicated "Notes on the Blood Vessels of the Optic Disc" in certain mammals (18 species) and a few manupials (3 species); no monkeys were included. The eyeballs were sent to him by Mr. F. E. Boddard, F.R.S., from the postmortem room of the Zoological Gardens. The observations were based on the microscopical examination of both transverse and longitudinal sections of the optic disc and the contiguous parts of the optic nerve. It was found in many mammals that the retina is almost entirely supplied by arteries derived from the choroidal system—cilio-retinal vessels—that reach the retina by passing round the sclero-choroidal border of the disc. Ophthalmoscopically this arrangement often (as for instance in the carnivora) causes an appearance somewhat like that of a deep glaucomatous cupping, and such cupping has been stated by Lindsay Johnson to be present in these eyes. But no cupping was found in any of the eyes examined microscopically by the author of the present paper, nor is the assumption of cupping necessary in order to account for the appearance.

Another interesting observation is that even when the cilio-retinal vessels carry virtually the whole retinal supply the central artery is seldom if ever quite absent, though often reduced to a minute vessel entering the optic nerve close to the eye. In some species such a minute *arteria centralis* becomes much enlarged at the lamina cribrosa by tributaries from choroid or sclerotic, the short trunk thus formed breaking up almost immediately in the disc for distribution to the retina; and ophthalmoscopic examination of such an eye would naturally lead to the erroneous conclusion that the supply was from a large *arteria centralis* as in man. Various other points were alluded to. The paper was illustrated by microscopical drawings.

Mr. Lindsay Johnson commented on the paper.

BACTERIOLOGY OF CONJUNCTIVA.

A paper on the bacteriology of the conjunctiva was read by Dr. W. B. Inglis Pollock, in which he reviewed and analyzed 204 cases of conjunctivitis in which bacteriologic examination had been made. There were 145 cases of acute mucopurulent conjunctivitis, including the acute contagious conjunctivitis of Weeks. Of these, 108 were due to the Weeks bacillus, 7 to Morax bacillus, 1 to *pneumococcus*, 2 to *gonococcus* and 6 to *staphylococcus pyogenes aureus*. There were 3 of mixed infection, and 18 gave indefinite or negative results. In 20 cases of subacute conjunctivitis (Morax), the diplobacilli were found fourteen times, Weeks' bacillus once, and there were five indefinite or negative results. In 9 cases of purulent conjunctivitis, 4 were due to the *gonococcus*, 3 to Weeks, once to *pneumococcus* and once mixed with *bacillus subtilis*. In 10 cases of ophthalmia neonatorum, *gonococci* were found eight times, *pneumococcus* once, and once the result was negative. One case of membranous conjunctivitis from *staphylococcus pyogenes aureus*. Several other cases completed the series.

The general symptomatology of the forms associated with individual organisms were gone into and cases related bringing out special points. The advantage of a bacteriologic examination of the conjunctiva prior to operation was illustrated by some cases.

Cases of phlyctenular conjunctivitis only showed *staphylococcus pyogenes aureus* or the xerosis bacillus, and these, and especially the latter, are innocuous in the conjunctiva of almost all cases. We are consequently reduced to the theory of an endogenous origin, and Bruns has shown that by injecting sterilized tubercle bacilli into the arterial system he can obtain nodules very like phlyctenulæ. We can not as yet adopt a pure bacteriologic classification

of conjunctivitis, but such is coming nearer. For ascertaining the presence of gonococci a bacteriologic examination is essential, and it should be carried out in all cases of membranous conjunctivitis. The paper was illustrated by lantern slides which had been prepared for a course of lectures given by Dr. Freeland Fergus.

Mr. Bishop Harman demonstrated a new ophthalmology, and Mr. E. E. Maddox showed some pigmy needles for suturing cataract wounds, and some delicate electric connections for use after cataract extraction.

BERLIN OPHTHALMOLOGICAL SOCIETY.

Meeting October 20, 1904.

Prof. V. Michel in the chair.

ANGIOMA OF THE CONJUNCTIVA.

Dr. Fehr showed a case of angioma of the conjunctiva which had been operated upon seven years ago in Hirschberg's clinic. It was a cavernous, subconjunctival, bluish-red angioma, composed of small lobules and nearly as large as a cherry. The first time operated on it was simply strung together and excised; this time Prof. Hirschberg will also cauterize the floor of the tumor, which seems to have involved the sclera too. Twenty-five such cases are on record.

Prof. Hirschberg showed a copy of an ancient (2nd century) Roman oculist's seal, the original of which is in the British Museum, and explained the meaning of the Latin inscriptions.

Discussion.—Prof. Greeff has seen such seals in the German Museum in Nürnberg which had been buried in old Roman colonies of Germany (Cologne); they prove the fact that trachoma followed the Roman army and was even then such a plague that each army had its own oculist.

DIFFERENCE BETWEEN THE DIRECT AND THE CONSENSUAL REACTION OF THE PUPIL.

Dr. Abelsdorff and Dr. Piper: On the difference between the direct and the consensual reaction of the pupil. The authors made an experimental investigation of the question whether the direct reaction is equal to or greater than the consensual. They came to the latter conclusion; the results were individually varying as to the difference, but in some cases there was a difference amounting to one-third of the size of the illuminated pupil. Their mode of experimenting was the following: The face was divided in two

by a perpendicular screen so that the one pupil was in the dark, whereas the other was illuminated by a light. After being exposed a certain, varying length of time the pupils were photographed by flash light. The largest possible mistake is 0.05 mm. In the majority of cases only slight difference of both pupils was noticed.

Discussion.—Salamonsohn states that the difference is too small to be of any clinical importance.

Levinsohn says that the theories of innervation were not at all thrown up by these experiments; the semi-decussation of the opticus not being equally strong, he supposed this to be the reason, as shown by many animals.

Abelsdorff rejoins that he did not intend to set up a new theory, he mainly had spoken on the results of his experiments.

ANATOMY OF THE DILATOR PUPILLÆ.

Muench: On the anatomy of the dilator pupillæ. After dwelling somewhat at length on the literature of the dilator the author explained his new method of examining the iris. He eliminated the pigment and examined the structures of the iris from the surface instead of making different kinds of cuts. He comes to the conclusion that the dilatator is nothing more than the system of the stroma cells. Ectropium of the uvea, which Fuchs and others state disappears after using a mydriatic, does not do so in reality; he explains it as the result of tonus of the stroma cells.

Discussion.—Hirschberg also says that ectropium uvea of that kind he had called "Halskrause," does not appear after mydriatics, it only becomes narrower.

DR. E. H. OPPENHEIMER,
Berlin.

Notes and News.

PROFESSOR DE SOUSA of Lisbon is dead.

DR. DE VRIES is practicing at Amsterdam.

AT Basle Dr. Wolllin has become privat docent.

DR. DE CRISTOFORO has taken up his residence at Catanea.

PROFESSOR VON REUSS has become professor in ordinary at Vienna.

GEHEIMRAT. Dr. H. Schoeler of Berlin has celebrated his twenty-fifth year as professor.

DR. GEORGE F. LIBBY has been appointed Ophthalmologist to the Denver Sanitarium of the Jewish Consumptives' Relief Society.

DR. FRACNIS W. ALTER of Toledo, Ohio, has returned from a ten months' professional trip spent in Vienna, Berlin and London.

DR. ROBERT K. GROVE was recently appointed to the position of attending ophthalmic surgeon at the Mercy's Hospital, Buffalo, New York.

Drs. EDWARD JACKSON and George F. Libby have moved their offices from the McPhee Building to the Academy of Medicine Building, 1434 Glenarm street, Denver.

At the last regular meeting of the Board of Directors of the Chicago Eye, Ear, Nose and Throat College, E. J. Brown, M.D., was elected to Professorship of Histology.

DR. WALTON WHITE died at his home in Baltimore November 2, 1904. He was assistant surgeon to the Presbyterian Eye, Ear, Nose and Throat Hospital. He was 61 years of age.

DR DERRICK T. VAIL and Dr. Louis Stricker were elected to serve on the staff of the Presbyterian Hospital, Cincinnati, as ophthalmologists, in place of Dr. C. R. Holmes, resigned.

At the thirty-seventh annual meeting of the Canadian Medical Association held in Vancouver, B. C., August 23-26, Dr. J. W. Sterling of Montreal read a paper on the diseases of the eye.

DR. JAMES HINSHELWOOD of Glasgow reports in the *London Ophthalmoscope* of October, 1904, a case of congenital word blindness, which is extremely interesting. This is Hinshelwood's fifth case.

DR. JOHN L. ADAMS and Dr. Robert J. Devlin have been appointed Professors of Ophthalmology and Otology in the reorganized School of Clinical Medicine, New York City.
School of Clinical Medicine, New York City.

THE new local anesthetic, *stovaine*, is well spoken of by several ophthalmic surgeons. It stands the heat of boiling for sterilization well, since it requires a temperature 120° C. before chemical change is brought about. It is used in solution of four per cent.

WE regret to announce the death of Dr. Daniel A. Thompson of Indianapolis, which took place October 23. Dr. Thompson had been sick for about three weeks, his death being due to an abscess of the liver. He was born in Rush County, Indiana in 1862, and graduated from the Medical College of Indiana in 1883. After one year as a resident physician at the Indianapolis City Hospital, he took a postgraduate course in ophthalmology in Vienna, and on his return became associated with his father, Dr. J. L. Thompson, in the practice of his profession. Ten years ago he succeeded his father as Professor of Ophthalmology at the Medical College of Indiana. THE RECORD extends its sympathy to Dr. J. L. Thompson and other members of the family.

A CEREMONY of great interest took place on June 26, 1904, in the Ophthalmological Department of the Hotel Dieu in Paris, when a monument to the memory of Professor Panas was inaugurated by his friends, pupils and admirers. This graceful recognition reminds us that Panas founded the eye clinique at the Hotel Dieu. The committee, of which Professor Guyon was chairman, has had

a medal struck, so that each subscriber may possess a permanent memorial of the late Professor. The actual ceremony of unveiling the monument was undertaken in the presence of a large and distinguished company. It was performed under the able presidency of M. Chaumic, Minister of Public Instruction and of Fine Arts. Several ministers of state, including M.M. Mesureur and Delyanni, were present in honor of the occasion and acknowledged in feeling terms the services of Professor Panas. The professional side of the late Professor's character was dwelt upon by his friends, Drs. Debore, Van Duyse, De Lapersonne, Nelaton and Jaccoud. (*London Ophthalmoscope.*)

NEW YORK ACADEMY OF MEDICINE.—The section in Ophthalmology will meet on Monday evening, November 21st, at 8:15. Order: Presentation of Cases, (a) Krönlein's Operation; Result Four Years Afterward, by M. L. Foster, M. D.; (b) Extirpation of the Normal Lacrymal Gland for Atresia of the Lacrymal Sac; (c) Congenital Word Blindness; (d) Cataracta Heterochronica, by A. Schapring, M.D.; (e) Fibrillary Edema (Edema of the Nerve Fibre Layer) of the Retina, by P. H. Fridenberg, M.D.; paper, The Comparative Use of Atropin and Homatropin for Cycloplegia, by Linn Emerson, M.D. The paper will be followed by a general discussion on The Practical Points Involved in Using Cycloplegics for the Determination of Refraction; to be participated in by Dr. H. Knapp, Dr. E. S. Thomson, Dr. T. R. Pooley, Dr. W. B. Marple, Dr. H. H. Tyson, Dr. W. E. Lambert, Dr. H. W. Wootton, the chairman, and others. Alexander Duane, M.D., chairman. H. W. Wootton, M.D., secretary, 35 West Forty-fifth Street. (*New York and Phila. Med. Journal.*)

THE OPHTHALMIC RECORD

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Original Articles.

GLIOMA OF THE PONS, WITH THE EYE SYMPTOMS AND REPORT OF THE AUTOPSY, IN A CHILD SEVEN YEARS OLD.

CASEY A. WOOD, M.D.

CHICAGO.

Ludwig Bruns asserts, in his admirable work, "Die Geschwülste des Nervensystems," that the most frequent forms of brain tumor are sarcoma and glioma. In his experience they constitute 66 per cent. of all the cerebral neoplasms. Allen Starr, of 600 cases which he collected, counts 91 instances of the glioma type and 120 of the sarcoma or gliosarcoma variety. The importance of this fact should be borne in mind, not only in diagnosis, but when the question of operative interference is discussed.

The following case is published mainly because of the autopsy report which it had been possible to append to it:

Ruth B., age 7, sent to me by Dr. W. J. Arnold, came for treatment of a squint that had suddenly developed two months before. There is no history of a neurosis in the family. The father and mother are healthy. She is one of three living children, two others (twins) having been stillborn at seven months, and a third having died of tuberculosis. There is no evidence of congenital or acquired syphilis, although the patient presents rachitic teeth. She is said to have been an unusually bright and intelligent child. During the last year her general health has not been good, and lately she has been very "nervous" and irritable. She has lost flesh within the past month, and has had occasional attacks of nausea and vomiting. Last summer she began to complain of severe headache and now and then of vertigo. The headache, vertigo and

nausea have increased in frequency and severity until the present time. Eight weeks ago she began to see objects doubled, and the parents noticed that there was a decided "cast" in the eyes, and that she could not see distinctly even large objects and often stumbled over them. There has not been any sighing, respiration or convulsions.

Status Presens.—Patient is a slight, nervous child and walks with a staggering gait. Although easily aroused, when she intelligently answers questions, she has a dull expression, speaks in a deliberate, halting manner, and stares about vacantly as in search of words. Her knee jerks are exaggerated. There is a paresis of both right and left external recti. She has a marked and equal mydriasis, but the pupils respond to light and accommodation—although imperfectly. She fixes with the R. eye by preference. $V=20/40$ in either eye.

There is an edema of both papillæ of about 2 D. in height, the swelling overlying the scleral ring in all directions. The vessels are tortuous, and are in some cases covered by retinal exudates or swelling. Here and there throughout both fundi are scattered fresh as well as partially absorbed retinal hemorrhages. The macular regions have a reddish appearance, more marked than in other parts of the fundi, but there are no signs of retinal changes except the hemorrhages and in the vessels mentioned. No improvement in vision could be effected by glasses, and it was assumed that the defective vision is due to the fundus alterations. A very unfavorable prognosis was given, and the patient referred to Dr. Sanger Brown, who confirmed the diagnosis of a basal brain tumor. Potassic iodid. with mercurial inunctions, was given, but patient grew rapidly worse and died in coma two weeks after I saw her.

Necropsy.—The necropsy was made by Dr. A. F. Lemke, who very kindly sent me a report of it. Corpse is that of an emaciated, female child of about 6 years of age. Estimated weight, 50 pounds. Necropsy limited to brain. Calvarium is symmetrical; bones are about 2 mm. thick. Dura mater is tense, quite firmly adherent to calvarium, its inner surface being relatively dry but free from hemorrhage and exudates. The leptomeninges are perfectly transparent; there is no edema. The surface of the brain shows evidence of compression, in that the sulci are almost obliterated and the gyri decidedly flattened. The membranes are easily separated and leave the cortical substance intact. The cranial nerves and the basal vessels present no gross changes. The brain stem, removed after the method of Meynert, is relatively large. The ventricles are distended with a clear, apparently normal, cerebrospinal fluid.

The lower surface of the pons presents numerous nodular irregularities of the color and consistence of normal pons tissue. These are of various sizes. The cerebellum, cut to expose the fourth ventricle, is normal. The fourth ventricle, unlike the lateral ventricles, is empty, its floor, particularly the right half, bulges into the cavity and is distinctly hemorrhagic. The ependyma, over the most prominent portion of the swelling, is separated from the underlying tissue by a small quantity of hemorrhagic fluid. Upon section of the pons, transversely, it is found that the right half, and to some extent the left, is infiltrated with neoplastic tissue, which is perfectly homogeneous, except near the ventricular surface, where there are hemorrhagic striations. The neoplastic tissue is in no sense circumscribed, and shades off gradually into the apparently healthy. The medulla and upper segment of the cord are normal. The entire brain stem was preserved in a 1 per cent. solution of formaldehyd. Small cubes of tissue were cut from various portions of the tumor and mordanted in Mallory's solution; others were hardened in graduated alcohol, after the usual fixing in formaldehyd, cleared in toluol and infiltrated with paraffin.

Sections of tissue, fixed in formaldehyd, were stained with hematoxylin and eosin, then with hematoxylin and picric acid after the method of Van Gieson, and with saffranin. Microscopic examination of these sections shows a very diffuse cellular infiltration in a bed of fibrillar tissue. The nuclei only take the stain well. The fibrillar material stains very faintly.

Sections of the tissue, mordanted in Mallory's solution and stained with methyl violet, show a nuclear staining less distinct than in the hematoxylin preparations, but the cell bodies are also faintly but distinctly stained. Many of the cells show numerous processes. There is much blood in the tissues near the ventricular surface of the tumor.

Bruns declares that glioma is histologically and histogenetically distinct from sarcoma; that the former is a neoplasm that infiltrates the true nervous tissue, and no sharp line of demarcation is macroscopically possible. Glioma shows in its substance a fair proportion of nerve fibers and ganglion cells that continue to functionate. Consequently, it often happens that the tumor produces fewer symptoms than its size and position would lead us to expect. Large hemorrhages often occur in gliomata and occasionally serious and sudden apoplexies set in, although the patient does not, at the time of the accident, appear to be any worse than usual.

The diagnosis of pontine tumors can usually be made, although

it is not always the easy task some authors would have us believe. In this case, for example, such subjective examinations as the determination of the limits of the visual field, the examination of the light sense, etc., were impossible, owing to the mental condition of the patient.

TUBERCULOSIS OF THE CHOROID; PERFORATION OF
THE SCLERA; EXTENSION POSTERIORLY WITH
INVOLVEMENT OF THE OPTIC NERVE: HIS-
TOLOGICAL AND BACTERIOLOGICAL EX-
AMINATION OF THE SPECIMEN.*

G. E. DE SCHWEINITZ, M.D., AND E. A. SHUMWAY, M.D.,

OF PHILADELPHIA.

The following case of extensive tuberculosis of the choroid has certain features of clinical and pathological interest which render it worthy of record.

Catherine H., colored, born January 8, 1900, was admitted to the Shelter for Colored Orphans of Philadelphia on February 4, 1902, and was examined in the Dispensary for Diseases of the Eye in the Hospital of the University of Pennsylvania on the 5th of April, 1904.

History.—For the history of the case we are indebted to Dr. William Evans, the physician in charge of the Shelter for Colored Orphans. The patient's father is living and well; the mother died of pneumonia; two sisters are residents of the Home and both are afflicted with tubercular glands. From the date of the patient's admission she was weak and complained much of headache, had a poor appetite and frequently vomited. About one year prior to her visit to the University Hospital it was noticed that the right eyeball was more prominent than the other. This prominence gradually increased until the condition presently to be described obtained. As the time wore on, the patient's general symptoms became more pronounced; emaciation increased, her joints, especially the knee joints, became swollen and painful, giving the impression of a tubercular process. She could not retain solid food.

Examination.—When seen at the University Hospital, the patient was exceedingly emaciated and the chains of glands on both sides of the neck were swollen and tender to the touch, but not superficially ulcerated. The knee joints were considerably en-

* Paper read before the Ophthalmic Section of the College of Physicians of Philadelphia, Oct. 18, 1904.

larged, and a similar enlargement was evident in the elbow joints. There was distinct beading of the ribs. The head was slightly retracted, and the child not infrequently gave vent to a short, sudden cry resembling the so-called hydrocephalic cry. There was slight fever, and, although the temperature was not taken in the dispensary, we understand that it did not rise above 102. The pulse was rapid and irregular, the respirations were not especially disturbed, and physical signs of tuberculosis in the lungs were wanting.

The right eyeball was decidedly proptosed, immobile and turned downward and outward, the surrounding conjunctiva swollen and

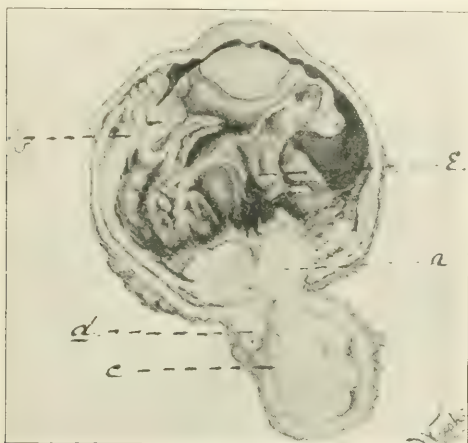


Fig. 1. a, tuberculous tumor-mass at posterior part of eye; b, site of the scleral perforation; c, greatly thickened optic nerve, replaced by the growth; d, small extrascleral nodule; e, blood-stained necrotic tissue.

edematous, the iris discolored and adherent to the lens. The anterior chamber was practically obliterated. Within the pupil space a yellowish-white material was evident, probably in the vitreous chamber, not easily studied owing to opacity of the cornea and opacification of the lens. In the lower portion of the eyeball posterior to the ciliary zone there was a large nodule which bulged downward and outward, and which had perforated the sclera and which was covered with injected conjunctiva. The eye upon the opposite side was free from external disease, nor could any changes

be detected with the ophthalmoscope, although this examination was somewhat difficult and unsatisfactory.

During the patient's residence in the Home all manner of treatment had been tried, and amongst other medication for a time full doses of anti-syphilitic remedies had been exhibited without benefit.

With this history in view, it seemed probable that the disease was tubercular, although the diagnosis of glioma was not positively excluded and was for a time entertained. A syphilitic process was eliminated by reason of the negative results from anti-syphilitic treatment.

Six weeks after the child's examination in the University Hospital, to which place she did not again return, she died with all the symptoms of intracranial involvement. Through the courtesy of Dr. Evans, the physician of the Home, the specimen which is here exhibited and which has been thoroughly examined with the results presently to be detailed was obtained, having been removed at our request by Dr. B. F. Baer, Jr. A general postmortem examination was not permitted.

PATHOLOGICAL REPORT.

The eyeball was removed at autopsy and by accident was placed in 10 per cent. formalin solution, in which it remained about ten minutes. It was then taken out, wrapped in gauze and brought to the Pepper Laboratory, where some of the material, removed through the opening in the eyeball by means of a sterilized platinum loop, was introduced into the anterior chamber of a rabbit's eye. The human eye was subsequently hardened in formalin and in ascending strengths of alcohol, and divided into halves by a section which passed through the scleral perforation, the center of the cornea and the optic nerve.

Microscopically the eye showed a tumor mass in the position of the choroid, which was 4 mm. thick at the posterior pole, and extended well forward both above and below. It was non-pigmented, and presented in many respects the appearance of a glioma of the retina. The optic nerve was thickened to a diameter of 10 mm. and was evidently destroyed by the growth. The opening in the sclera noted in the clinical history was 3 mm. wide and located 3 mm. back of the attachment of the ciliary muscle; no trace of the retina could be found. The lens was pushed forward so that the iris was in contact with the cornea; the latter showed evidence of previous ulceration. (Fig. 1.)

Microscopical examination of the celloidin sections show the

character of the tumor to be that of a conglomerate tubercle, which has had its origin in the choroid coat. Considerable portions of the tissue have undergone necrosis and contain no formed elements; in other places there are fragments of cell nuclei and granular detritus which stain with the hematoxylin, and great numbers of typical tubercular giant cells, with their nuclei arranged about the periphery of the cell bodies. At the margin of the tumor there are masses of round cells, which stain well and with them the usual epithelioid cells. All traces of the choroid coat have disappeared, with the exception of the pigment cells; the mass extends forward as far as the ora serrata below and to a point 3 mm. back of the ora above. In the center of the growth the blood vessels have been completely destroyed, while in the less necrotic portions they show thickening and hyalin degeneration of their walls, with obliteration of their lumens by the growth of the lining endothelial cells.

The sclera is invaded, and at the point of perforation its structure has disappeared, the lips of the opening being filled with necrotic tissue. Posteriorly a similar perforation has just taken place, and an extra-scleral nodule may be seen alongside the nerve.

The retina is detached and passes forward as a disorganized membrane from its attachment at the ora serrata to the posterior surface of the lens.

The optic nerve is enormously thickened, and replaced by a necrotic mass in which no nervous elements can be found.

The lens is cataractous, shows deposits of lime salts, and is pressed forward so that the iris is adherent to the cornea at the position of a healed perforating ulcer of the latter. There is a moderately severe plastic irido-cyclitis, and the iris is covered with a connective-tissue membrane which occludes the pupil.

A number of sections were stained and examined for tubercle bacilli, and a few typical organisms were found.

Four weeks after the inoculation the rabbit's eye showed distinct injection, and a number of grayish-white nodules appeared in the iris. The cornea became cloudy and staphylomatous, and the eye was enucleated one week later. Sections in celloidin show marked infiltration of the staphylomatous cornea and an intense irido-cyclitis. The round cells are massed in the form of nodules in the iris stroma and as an exudate on its surface. Stains with carbol fuchsin reveal the presence of myriads of tubercle bacilli throughout the iris, and thick masses of them in the nodules and in the exudate on the surface. The diagnosis, therefore, of conglomerate tubercle of the choroid is proved by the histological

examination of the eyeball, and by the results of animal inoculation.

REMARKS.—The number of cases of tuberculosis of the choroid, whether of the diffuse or conglomerate type, is still comparatively small, and there are questions of differential diagnosis, therefore, which still remain to be settled. The literature of the subject has been analyzed recently by Zur Nedden¹ and La Grange², so that it will be unnecessary to review it here. The conditions with which choroidal tuberculosis is most frequently confounded are glioma (neuro-epithelioma) of the retina in the young and sarcoma of the choroid in adults. As most of the cases occur in children, the differential diagnosis usually rests between it and glioma. Certain points of value in making this diagnosis have been determined and have been recorded by Dupuy-Dutemps³ in a recent investigation of this subject, as follows:

1. Although conglomerate tubercle has been found almost constantly in young subjects, sometimes it appears in adults. In a case recorded by Manfredi and Coffer, the patient was 43 years old, and in one described by Posey before the American Ophthalmological Society, in July, 1904, the man was 49 years old. According to Zur Nedden, the age of patients suffering from tubercular tumors of the choroid has varied between 1½ and 62 years, although the age of childhood has furnished by far the greatest percentage. Between the ages of 6 and 20 years, however, the probabilities will be in favor of tuberculosis, as it is too late for glioma and too early for sarcoma.

2. The evolution of tuberculosis is generally more rapid than that of a tumor, and an ectasia of the sclera follows soon after the appearance of glaucomatous symptoms. Scleral perforation has been noted in from three weeks to four months in many cases, although the process is sometimes slower, and very exceptionally in adults the duration may be several years. Zur Nedden also considers the early involvement of the sclera with perforation a sign of first diagnostic importance.

3. The appearance of iritis is also a probable symptom of value, and the earlier it is found the greater is the likelihood of uveal tuberculosis, even if the iris does not show typical tubercular nodules. In the case of intraocular tumor, the inflammatory symptoms do not appear usually until a much later period.

4. Choroidal tuberculosis is very rarely primary, and other

1. *Klin. Monatsbl. f. Augenheilk.*, vol. xli, No. 2, 1903, p. 351.

2. *Traité des Tumeurs de l'Oeil*, Tome i, Paris, 1901.

3. *Archiv. d'Ophthalmologie*, vol. xxiv, 1904, p. 317.

signs of tuberculosis will be found in the general system. Hence inquiry into the state of health of the individual, and his family history, together with very careful examination of the other organs of the body, are very important.

5. The test with tuberculin may be of value, although Dupuy-Dutemps does not place any great reliance upon it.

6. Finally, the inoculation into a rabbit's eye of the aqueous humor obtained from the patient by corneal puncture, although often negative in its results, especially in the early stages of intra-ocular tuberculosis, should not be omitted, as a positive result would make the diagnosis certain.

The case we have described fulfils in all important respects the requirements of diagnosis of tuberculosis of the choroid, and is chiefly interesting in the elaboration of the process, its extension posteriorly with involvement of the optic nerve, the early perforation of the sclera, the extra-scleral nodules which account for the proptosis and displacement of the eyeball downward and outward, and the positive results of the bacteriological examination of the specimens and the inoculation of the rabbit's eye.

Successful implantation of the products of tubercular disease of the choroid in animals' eyes has been reported, but apparently not frequently. Groenouw in his article on "Tuberculosis of the Choroid"⁴ describes only three positive results. They were recorded by Hosch, Reissman and Proebsting.

A CASE OF CEPHALIC TETANUS FOLLOWING A CONTU- SION WOUND OF THE OUTER CANTHUS.*

A. MAITLAND RAMSAY.

Fellow of Faculty of Physicians and Surgeons, Glasgow; Surgeon to the Glasgow Ophthalmic Institution, Glasgow Royal Infirmary.

The case of tetanus which I bring before you to-night differs considerably from the ordinary type, chiefly in the distribution of the symptoms, which were, for the most part, localized in facial muscles of the right side. The patient was a woman, J. M., 23 years of age, who was on Sept. 21, 1904, sent by Dr. Thos. Dunlop, Thornhill, Dumfriesshire, to consult me at the Glasgow Ophthalmic Institution. Four days previously she had been struck on the right eye with a walking-stick, and on admission to the hospital was found to have a suppurating wound, extending for about three-eighths of an inch outward from the external canthus of the injured eye. There was no corneal injury, but there were extensive

4. Graefe-Saemisch Handbuch der gesamten Augenheilkunde, Zweite Auflage, Lieferung 81-83, 1904, p. 710.

* Read at a meeting of the Glasgow Medico-Chirurgical Society, Nov. 18, 1904.

chemosis of the bulbar conjunctiva, which covered the cornea over its outer half, and ecchymosis of the lids and swelling extending over most of the right side of the face. The intraocular tension was normal, the anterior chamber of natural depth, the pupil dilated and irresponsive to light, the fundus oculi could not be illuminated, and all perception of light was lost.

About three days after admission the patient began to complain of stiffness of the lower jaw, especially on the right side. As no maxillary injury could be detected, this at first did not attract much attention, and was attributed to the extensive swelling and bruising which involved the whole of the right side of the face. Though, however, the swelling gradually subsided, the stiffness became steadily worse, and by September 28 it was manifest that the condition was serious and strongly suggestive of trismus. The patient could then open her mouth only on the left side, and the right corner drooped toward the chin. All the muscles on the right side of the face were paralyzed, but owing to the injury and swelling it was difficult to determine the degree of the palsy of the orbicularis palpebrarum, and the labio-nasal fold was never completely obliterated. The occipito-frontalis was also involved, and the wrinkles on the left side of the face were much more marked than those on the right. On both sides the knee jerks were exaggerated, and ankle clonus was present.

On the following day there was complaint of stiffness of the right trapezius, and as fears were now entertained that the case would turn out to be one of general tetanus, Dr. Knox was called in consultation, and Dr. Campbell McClure was asked to prepare a culture of the discharge from the wound. Dr. Knox's examination revealed a sinus leading down to bare bone at the malar process of the superior maxilla, and the bacteriologic investigation demonstrated the presence of the tetanus bacillus in large numbers. The injection of antitetanic serum was at once commenced, and for two days the conditions remained practically unchanged. On the evening of October 1, however, while the eye was being douched and the sinus syringed, the patient had an attack of laryngeal spasm, so severe while it lasted that it was feared she would die of suffocation. In a few minutes, however, the muscles relaxed, but shortly afterward, while the girl was taking a drink, she was suddenly seized with slight spasm of the pharynx similar to that which occurs in hydrophobia.

The serum injections were continued and chloral prescribed in large doses, and on the following day the tonic contraction of the muscles of mastication was distinctly less, although there was again

a tendency to the occurrence of spasmodic dyspnea when the wound was being dressed. The attack was not, however, nearly so severe as that of the previous evening, and it never again recurred. In fact, from this time onward there was steady improvement, and after October 3 the injections were intermitted for six days. During sleep the muscles relaxed so much that the mouth remained open, but on waking there were still occasional spasmodic contractions of the muscles of mastication, and several times the patient bit her tongue severely. As the discharge was not escaping freely from the sinus at the right outer canthus, Dr. Knox made an opening through the skin and inserted a drainage tube. After the beginning of November, there was a steady progress, and there is now (November 18) little difference between the two sides of the face, although the right occipito-frontalis does not act so well as the left. There is still slight discharge from the wound, but the conjunctiva is almost quite clear, and a few exuberant granulations at the outer canthus have been snipped off. The electrical reaction of the facial muscles on the right side is normal, but the response to both galvanic and faradic stimulation is more sluggish than on the left. With the right eye the patient can determine hand movements at six feet and count fingers at two feet, but as she is unable to detect the discs on the test square used with the perimeter, the field of vision can not be satisfactorily mapped out. Ophthalmoscopic examination shows the media to be perfectly transparent, and while little abnormal is to be detected in the appearance of the optic disc and retinal blood vessels, a rupture of the choroid is seen to extend downward and inward in the region of the macula.

Considering the large percentage of these cases that prove fatal, such a complete recovery is very gratifying. In this instance it is probably, in a large measure, to be attributed to the use of the antitetanic serum, which was administered seven times to a total amount of about 150 cubic centimeters. Distinct benefit followed every injection after the third. The patient was throughout kept quiet, well nourished (careful attention being paid to the action of the bowels), and chloral in large doses was given to secure rest and sleep, the total amount of this drug used between September 28 and the beginning of November being 3,000 grains. For the first sixteen days 150 grains were taken every twenty-four hours. The patient's strength was well maintained throughout, the pulse averaged about 90, and temperature was always normal.

I am indebted to my house surgeons, Dr. Young and Dr. Hutton, for the careful notes they have made of this case.

THE COMBINED TREATMENT IN DISEASE OF THE EYE, ESPECIALLY IN THAT OF THE UVEAL TRACT.*

G. HERBERT BURNHAM, M.D., (TOR.), F.R.C.S. (EDIN.),

Professor of Ophthalmology and Otology, at the University of Toronto, Etc.

My remarks will be directed to the treatment of various diseases of the eye, and but incidentally to other conditions. By my combined treatment, I mean the internal administration of mercury and the iodid of potassium associated with the hypodermic injection of pilocarpin.

The details of this treatment have been given in previously published articles, and hence are not going to be referred to in this paper. Moreover, let me mention that I have been using, and most closely observing, the effects of this treatment for a full fifteen years.

The reason of the radical nature of its influence appears to be as follows: It stimulates the nerve centers to a remarkable degree, and through them the ordinary physiologic processes of the affected part or parts especially are aroused to an activity far in excess of the normal, and thus the diseased condition is acted upon and removed. And, moreover, this hyperactivity can be regulated and sustained for years if necessary by the manner in which the combined treatment is administered.

I shall now place before you a certain number of clinical facts for your consideration, and shall begin by giving succinctly an account of two cases of sympathetic ophthalmia in quite different stages of the disease. In September, 1900, I read a paper before the Canadian Medical Association at Ottawa upon the successful treatment of one case of very severe sclerokeratitis in a patient with a tuberculous history, and of another of acute sympathetic ophthalmia. The report of this case of sympathetic ophthalmia was incomplete, and was given comparatively early in the treatment of the disease, in that I had gone far enough to warrant me in feeling that this combined treatment was capable of exercising a marked controlling and curative influence upon this disease. I shall give this case as fully as time will permit.

It is that of a boy, aged 12 years, referred to me at the time of the injury by Dr. Stevenson, Toronto, suffering from acute sympathetic ophthalmia, that is, a very severe cyclo-irido-keratitis. When the sympathetic trouble, which showed itself rapidly and suddenly three months after the injury, was first noticed, the other eye, which had been injured by a penetrating wound extending well

* Read before the British Medical Association, at Oxford, July, 1904.

up into the cornea from just at the ciliary region, was excised, the date being Jan. 25, 1900.

Under atropin, the pupil became at once fully dilated. Mercury and the iodid of potassium were given. The eye at first improved. On February 2, eight days after the excision, the sympathetic inflammation plainly showed itself. I now began my combined treatment. Of the first twelve injections of pilocarpin, that is, the first two weeks, the effect was not full, though I gave as much as one-sixth of a grain at each injection. Though there was apparently no noticeable constitutional effect of the atropin, and only a very slight and temporary dryness of the throat, by careful pressure upon the canaliculi, all passage of it into the throat was stopped, and then the one-tenth of a grain gave a full effect, whereas previously one-sixth of a grain did not. This latter under normal conditions is much too large a dose for a child 12 years old.

The pupil was now, at the end of three weeks, only one-third dilated, the exudation into the tissue of the iris and ciliary processes causing the narrowing to take place. The margin of the pupil was very firmly bound down, and the capsule of the lens in the pupillary area was covered with a coating of lymph.

On the 24th, four weeks since the excision, and about three weeks since the beginning of the combined treatment, another acute attack came on. There was much general injection, tension +1, severe pain, and keratitis punctata over the whole cornea; in fact, a well-developed condition of acute sympathetic cyclo-irido-keratitis. The vision was perception of light only. On February 27 the eye was quieter, tension+. On March 20 the eye was still improving and the vision was better. The combined treatment was still kept up, and the eye was doing well till March 23, when there occurred a very acute exacerbation with severe pain, the tension +1, and the vision perception of light only.

On March 31 the eye was better. Between this date—March 31 and the beginning of September, 1900—the combined treatment was used. An improvement, which was most uniform, thorough and unbroken by any symptom of relapse resulted. The sight also gradually improved till September, 1900, the vision was 10/20 less two letters. The posterior synechiæ have been almost completely removed; but the pupil is dilating very slowly, due to the exudation still present in the iris tissue. The tension is normal. Up to this time the boy had taken internally 5 grains of iodid of potassium, thrice daily, and one twenty-fourth of a grain of bichlorid of mercury. One-tenth of a grain of pilocarpin was injected every second day after the first two weeks for five months continuously.

During the remainder of the eight months, at the end of every two weeks, I have given an injection every second day for six injections. His general health is good.

This is a shortened account of the case I read September, 1900.

In this description of the case I gave no account whatsoever of the fundus, for I could not see its details, so hazy was it by reason of the deposit of lymph on the anterior capsule of the lens. Just after the sympathetic ophthalmia began, the optic disc showed on ophthalmic examination a normal appearance save an uniformly infected look. The media quickly becoming hazy, prevented any subsequent examination till the present one.

Later on, in the autumn of 1900, my ophthalmic examination showed a fundus apparently healthy, but a very peculiar looking optic disc. However, so hampered was I by the lymph that I could make out no reliable details. Early in 1901 I got a better view of the fundus, and now was able to look at a disc unlike any I had ever previously seen.

The optic disc was covered by an exudate abruptly limited to it, and not extending in the slightest degree into the surrounding tissue. This exudation gave to the disc the appearance of being covered with a dense, dull whitish deposit, resembling closely the dull, white color of putty. The only sign of vessels was a most minute red line, just traceable, running vertically up and down; but at the center of the disc no trace of one. Away in the outer field close to the ciliary processes were a few spots of choroido-retinitis.

About one year later the exudate was so lessened that the larger vessels could be plainly distinguished and a few capillaries could be seen.

Again, one year later the process of removal was going on so satisfactorily that now many more vessels could be made out, and the margin of the optic disc was quite ragged looking. In the beginning of 1904 the process of removal was still being continued, and now the capillaries were becoming quite numerous and the vessels at the center of the disc much less covered by deposit. The spots of choroido-retinitis were being removed, leaving only disturbed pigment to mark their places. Atropin, a 4-grain solution, had been uninterruptedly used from January, 1900, up to February, 1904. Then it was stopped, and the pupil contracted to one-third normal size. At first, it was a little eccentric, but later quite central and fairly active. The cornea is now quite clear, and has been so for some length of time. The anterior chamber is quite normal, and also the tension, as it has been ever since September,

1900. The capsule of the lens still has a flaky, opaque look in places with quite clear spaces between. This exudate is still undergoing removal. There is a marked contrast between the white color of the disc and the vessels; that is, there is an absence of the natural luster and color of the disc, though it is for all practical purposes normal as to its function. The vision is with the myopic correction of -1 sph. \ominus $-.50$ cyl., 20/20 or 6/6, and Ji easily and comfortably.

The mercury and the iodid of potassium have been regularly given save now and then a short intermission. The hypodermic injections of pilocarpin have been continued.

During the year 1901 a series of six injections was given—one every alternate day—and after an interval of two weeks was again repeated. During the year 1902 the same course was pursued, save the interval was made three weeks. In the year 1903 the interval was lengthened to four weeks. In 1904 I have given the six injections—one every day—and the interval has been six weeks. The treatment of this case of sympathetic ophthalmia is still being continued and shall be till the pupil becomes normal as to its size and activity. This may necessitate six to twelve months' longer use of the remedies.

Two months is the greatest interval that can be allowed between a series of injections; for if this be exceeded no progress is made. This is my opinion, founded upon clinical experience.

Since September, 1900, the improvement has been steady, unbroken by the faintest sign of any relapse or irritative process, and this improvement has been equally marked in every part of the eye. The boy is strong and healthy and growing rapidly.

The second case is William M., aged 49 years, who first consulted Dr. Trow, Feb. 19, 1898. I then saw him in consultation with Dr. Trow, who is a colleague of mine, at the Eye and Ear Infirmary and General Hospital, Toronto.

The left, the injured eye, was a shrunken, lost globe from an injury, July 22, 1897. On Dec. 2, 1897, the right eye became affected and was quickly highly inflamed, associated with an agonizing pain. The man said that for four days there was no p. l., then atropin was used and the eye became quieter, only again to be similarly attacked two weeks later. The sight did not again return. The condition of the eye at this consultation was p. l. very feeble, indeed, tension decidedly minus, pupil occluded and excluded and iris tissue filled with exudate.

We both looked upon the right eye as being in such a desperate

state that the question of treatment seemed only a forlorn hope. However, we decided to use the combined treatment. I did not then have the same experience as I now possess, or I am certain I should have urged the use of the treatment with good hopes of success. The treatment was energetically given from February, 1898, to October, 1898, a period of eight months. The result was that the attacks of inflammation ceased and the eye became quite quiet. In November an iridectomy was tried and failed. Influenza now attacked him, and he was not again under observation till February, 1899.

The condition of the eye was now so favorable that the lens was removed. In April a DeWecker's scissors operation was done, resulting in a good pupil. The optic disc was atrophic in appearance, with vessels smaller than normal. After the operation the man returned home, a distance of 1,500 miles, and was not again seen till August, 1900, a period of fifteen months. During a greater part of this time he took strychnin internally. In September, 1900, the vision of the right eye was with $+11$ sph. $\ominus +250$ cyl. ax. $110 = 20/30$ and on adding $+3$ sp. was J_i easily.

In June, 1904, that is, almost four years since the above date, in a letter received from him written by himself, he says his vision is in every way as good as in September, 1900.

Now, with your permission, I shall give most briefly the history of a few test cases of other diseases of the eye in which it has been used.

A man, aged 45 years, who consulted me, was almost a cripple from chronic articular rheumatism; vision of each eye very poor; a most marked and broad calcareous band stretching almost completely across the cornea of each eye. He had been under treatment for several years, with the most approved of methods, without any avail, when he consulted me for the first time in 1890. Under my combined treatment, at the end of four years his condition was as follows: So complete a disappearance of the rheumatism that he could run up and down long ladders with security and ease; a slight nebulous haze of each cornea had taken the place of the calcareous degeneration; the vision was 20/50, and he could read with ease, whereas at the beginning he could not read at all. To-day, ten years later, his condition is equally as satisfactory, and no relapses have occurred.

Another man, a case of acquired syphilitic-cyclo-iritis of one year's duration, had been under treatment with atropin drops, mercury and the iodid of potassium, which had apparently exer-

cised no curative effect: for the condition of each eye was as follows: Vision counting fingers only; constantly recurring attacks of inflammation, the exudate most copious, giving a pupil almost occluded and excluded and the lymph apparently well organized. One and one-half years of the use of the combined treatment resulted as follows: Vision of one eye, 6/12, or 20/40, and of the other, 6/6, or 20/20. And, moreover, during this time no relapses had occurred.

In cases of hypopyon-kerato-iritis of the worst type, that is, with a large central ulcer, pus in the anterior chamber up to a level with the lower pupillary margin, and the pupillary margin well bound down with lymph, the use of the combined treatment has resulted in the complete recovery of the eye, with only a slight corneal haze to mark the position of the ulcer, and the pupil fully dilated and free of lymph.

I was once asked to see a case of iritis in an hospital patient who was suffering from a typical diffuse scleroderma. This skin disease had been treated in every possible way for five years or more in various hospitals in the United States, with no beneficial effect. When I began my treatment he lay in bed stiff from his head to his feet, a most typical specimen of the advanced disease. Under the combined treatment for one and one-half years there was a most marked improvement, so that he was able to walk and use his hands fairly well. He was discharged through unruly conduct and lost sight of. Also, it has acted beneficially in several forms of eczema, which were present in patients whose eyes were undergoing this treatment.

In a case of albuminuric neuroretinitis in a woman but lately confined, where the urine was scanty and almost all albuminous and the head pains severe, its use resulted as follows: At the end of three weeks a normal amount of urine was passed with a very small percentage of albumin, and a cessation of the headaches and a decided lessening of the neuroretinitis. The woman felt so well that she went home. The physician who called me in was very gratified; but when I wished to continue the treatment so as to produce a permanent effect by means of tissue change, he did not second my efforts. To him the relief was all that could be looked for or desired. This opinion of physicians can not be wondered at, when, in a well-known book upon the eye, there is a sentence as follows in regard to inflammation of the vitreous: "As in other vitreous changes, if the general condition permits it, a sweat cure may be tried, either by means of a Turkish bath or with

jaborandi." In answer to this I beg to say that between the Turkish bath and the combined treatment there is no semblance in effect whatsoever. It shows most pointedly that the true action of the combined treatment had not been grasped; for sweating and ptialism, i. e., the profuse secretion of saliva, are only symptoms of the proper action of the medicine, and intrinsically nothing more. The Turkish bath has never and could not produce the changes that pilocarpin and iodid of potassium and mercury have. The effect of the bath is very superficial; and in this combined treatment to heighten the perspiration, either by the bath or the drinking of hot water, and thereby to increase the effect of this treatment, is an altogether wrong conception. The minds of those who think thus are wholly taken up with the idea of relieving one organ by the increased activity of another. They do not connect with the combined treatment that which is its essential feature, viz., tissue change; whereas my use of the combined treatment in various diseases of the eye and incidentally in diseases of other organs, has shown to me emphatically its power to bring about radical change of tissue by restoring to health markedly diseased tissues.

In a case of cerebral syphilis, where I was called in consultation, the agony the man suffered was extreme, and no effort up to that time made had been able to alleviate it. However, under the combined treatment his life was made endurable; in fact, comparatively comfortable for the month or so he lived. In hyalitis, where other forms of treatment have failed, its use has given excellent and permanent results.

In many forms of choroido-retinitis, especially of the yellow-spot region, the effect has been very satisfactory and lasting. In many forms of acute iritis with posterior synechia and lymph in the pupillary area, where usually the acuteness of vision is permanently more or less impaired as the result of the ordinary treatment pursued, with the combined treatment a normal condition ensues; that is, a fully dilated pupil, the removal of lymph from the pupillary area and the restoration of normal vision. Especially do I consider it of decided value in gouty and rheumatic affections of the eye. In corneal nebula, specific or non-specific, the effect of the treatment has been excellent, resulting in a most decided visual improvement.

If these remarks regarding the favorable effect of this treatment apply to all parts of the eye, as I affirm they do, having, as it appears to me, proved it, then this treatment ought, of a surety, to be

applicable to certain diseased conditions of other tissues and organs of the body.

In this paper I have given, of necessity, a very brief summary of the reasons of my great confidence in this form of treatment. This treatment seemed to open up so strong a possibility of being able successfully to cope with diseases of the eye, where previously failures had been the rule, that I was afraid at first that my belief in its unusual powers of healing might, after a time, prove to be misplaced. But after the combined treatment had been put to most severe and searching trials, it came out more firmly based than ever. Thus my confidence has grown, and I am now, and it appears to me rightly, firmly fixed in this belief, that it is this new use and grouping of old remedies, which enable results to be brought about satisfactory, far-reaching and permanent.

REPORT OF A CASE OF GLAUCOMA WITH OPERATION WITH UNINTENTIONAL RESULT.

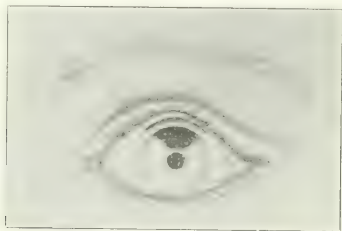
WHICH SUGGESTS A POSSIBLE IMPROVEMENT UPON THE OPERATION
OF IRIDECTOMY AS IT IS ORDINARILY PERFORMED.

J. C. M'ALLISTER,
RIDGWAY, PA.

J. E., age 47, complains of periodical attacks of dull vision with redness of the eyeball. These attacks, according to his belief, have existed for thirty years. Not much if any pain. Examination shows T. nearly +2, cornea steamy and anesthetic. Pericorneal injection pronounced and the eye on the whole looks sick. The interior of the eye cannot be seen. Contrary to expectation the pupil is small and the anterior chamber of normal depth.

I had the patient enter the hospital for observation and with a view to operating. It was observed that the tension in the morning was usually high, but that it would become nearly or quite normal in the afternoon or evening. One morning the tension being low, I used a drop of homatropin sol. that the fundus might be seen, if possible, and also to note the effect upon the tension. Owing to cloudiness the disc could not be seen. The tension rose immediately when eserine was used to counteract the effects of the homatropin. Operation was then done under general anesthesia. Owing to the increased tension the iris was flooded out of the wound, although the keratome was slowly withdrawn. The iris was then grasped and an effort made to cut from the pupil to

the periphery of the iris, tear across the marginal attachment and cut back to the pupil in the ordinary way. On making the first cut into the iris it bled freely and the anterior chamber filled at once with blood so that the iris could not be seen. When in two or three days the eye had cleared so that the iris could be seen, it was found that a bridge of iris had been left connecting the two angles at the pupillary border, making a perfect pupil. The tension of the eye went at once to below normal, where it has remained. The cornea has regained its luster and the effects of the operation are all that could be expected.



The advantages of leaving a strip of iris next the pupil must be apparent for the following reasons: It secures a circular pupil for optical and cosmetic purposes. The bridge will steady what would otherwise be angles of iris tissue and it must have some influence in keeping the iris taut and away from the periphery angle and with less tendency to block it. Another advantage is that in those cases where it is not desirable to allow the iris to remain within the wound to produce a cystoid cicatrix, that this bridge will help free the angles of the wound of iris tissue.

Abstracts from Recent Ophthalmic Literature.

BY EDWARD ADAMS SHUMWAY, M.D.

PHILADELPHIA.

Concerning the Relations Between Trigeminal Neuralgia and Recurring Erosions of the Cornea.—Bartels (*Muench. Med. Wochenschr.*, No. 17, 1904), as the result of the examination in two cases, comes to the conclusion that in some cases, at least, there is a decided influence exerted by neuralgia of the supra-orbital nerve, which would explain the recurrences more satisfactorily than any of the previously assumed theories. He thinks that the original injury may affect a nerve in which a neuralgic tendency has existed, or in which it is produced by direct injury at the time of the accident. In the cases described by him, typical trigeminal neuralgia, chiefly of the supra-orbital branch, was present after the accident. Elevation of the epithelium occurs in attacks of neuralgia, even without corneal injury, and the abnormally slight attachment of the epithelium would be best explained by a simultaneous affection of the nerve. The attack of neuralgia could produce a separation of the epithelium, herpes corneae, and vice versa, a loss of epithelium could bring on an attack of neuralgia. The detachment of the epithelium by adherence to the lid, which, according to Szili, causes the recurrence, would in the latter case be the immediate etiological factor. The author does not claim that this explanation applies to all cases. For the treatment of the neuralgia he prescribes rest in bed, continuous use of hot compresses, and the application of linseed poultices to the nerve exit. In addition to quinin, sodium salicylate, 1 grain 3 to 6 times daily, is most effective, and in very violent attacks he makes an injection of one-half syringe full of Schleich's solution, No. ii, at the point of exit. The constant current is also of great value, the anode being placed over the nerve or even on the eye. (Rev. in *Wochenschr. f. Ther. u. Hyg. des Auges*, June 2, 1904.)

The Treatment of Keratoconus.—Elschnig (*Wiener Klinischen Rundschau*, 1904, 20), calls attention once more to the method of treatment of keratoconus which he advocated in 1894, which has not received general recognition. He believes that cauterization of the apex of the cone with the galvanocautery, at a dull red heat, is the best way of treating such cases, and claims that the cicatri-

cial tissue, which results from the cauterization, is denser and more resistant, other things being equal, the earlier and richer the vascularization from the corneal margin. He, therefore, connects the deeply cauterized apex with the nearest point of the corneal limbus by means of a superficially cauterized band of the same width. Before the central slough has been thrown off, numerous vessels have passed across the connecting bridge, and within three weeks two-thirds of the cauterized area is densely vascularized, the central scar increases in density and diminishes in area, so that the cone flattens. The apex is almost always eccentric, and the bridge-like extension of the scar does not interfere with the visual acuity. If the apex is not eccentric, care should be taken to make the corneal scar eccentric, so that a portion of the pupil space will be left free. Elschnig believes that a single cauterization carried out in this way will have as much effect as repeated cauterizations of the apex alone, in which view he is sustained by Czermak. He reports two additional cases in which good results were obtained, in one the visual acuity improving from 1/10 (with -15 sph.) to 6/18, in the second from finger counting at 11¼ in. to 6/24. In order to improve the vision he subsequently tattoos the scar. He considers an optical iridectomy after cauterization to be unnecessary, and in most cases harmful, as the visual acuity usually sinks after the iridectomy has been performed. (Rev. in *Wochenschr. f. Ther. u. Hyg. des Auges*, June 2, 1904.)

Can the Iris when Separated from Its Ciliary Attachment Spontaneously Reattach Itself?—Prof. B. Wicherkiewicz, Krakaw (*Klin. Monatsbl. f. Augenheilk.*, April, 1904), reports a case of injury by a stone, in a child 12 years of age, in which he found the anterior chamber partly filled with blood, and an iridodialysis above measuring 6 to 8 mm. in breadth. The separation of the iris was confirmed by ophthalmoscopic examination. A mydriatic salve, containing atropin, scopolamin and cocain, was used and cold compresses were applied. Five days later examination showed that the iris had reattached itself, and, while the pupil was displaced somewhat downward and outward as the result of a broadening of the iris above, the cleft did not reappear. He attributes the attachment to the prompt use of the mixture of mydriatics and to the fact that the lens was displaced upward toward the position of the iridodialysis, so that the iris tissue was mechanically drawn toward this spot. A second case was seen, about the same time, in which the ciliary border of the iris was torn loose, during an attempt to cut a thick secondary cataract. When the capsule was

finally cut from the iris attachment, the latter retracted into place, and after a day's use of the same mydriatic salve the iridodialysis entirely disappeared. In this case the favorable factors were the pressure upward of the iris by the vitreous, as it forced its way through the opening in the capsule and the previous atropinization, which prevented any active movement of the iris.

The Use of Tuberculin in Diseases of the Eye.—Prof. Haab (*Soc. de Med. de Zurich*, February, 1904), announced the results obtained by injections of tuberculin in 21 cases of affections of the conjunctiva, of the lachrymal gland, retina, optic nerve, iris and choroid, principally for the purpose of diagnosis. A simple febrile reaction is not sufficient to establish the nature of the ocular affection, as it may be due to tuberculosis of other parts of the body. But the appearance of local reactive symptoms, repeated several times, such as hyperemia of the iris or of the iris nodules, increase of ciliary injection, of tenderness or pain, or the formation of a small hyphema, is of great importance. In some cases the injections influenced the progress of the malady favorably, as in a young girl with nodular iritis, with retrocorneal deposits, and infiltration of the vitreous, who succumbed later to meningeal involvement. A man of 31 years, with nodular iritis and a large area of choroiditis, was entirely cured after 14 injections. In two cases of disseminated choroiditis in young people, the injections produced, in addition to the fever, a local reaction, which in one took the form of intense ciliary hyperemia, with conjunctival edema, and in the other of a small hemorrhage on the papilla. No signs of tuberculosis were found in other organs. These facts tend to confirm the tuberculous nature of certain cases of disseminated choroiditis, already suspected by several authors, particularly by Michel. (Rev. in *Annales d'Oculistique*, April, 1904.)

Trepanation of the Sclera in Painful Eyes, Blind from Glaucoma.—Prof. Konrad Fröhlich (*Klin. Monatsbl. f. Augenheilk.*, May, 1904), recommends very strongly the removal of a piece of the sclera in such eyes, which was originally proposed by Robertson when technical reasons prevented the performance of iridectomy. The operation has been deemed of little value by Czermak, Terrien and Panas, but Prof. Fröhlich has practiced it in five cases, with success in all but one. He performs it as follows: Incisions 10 to 12 mm. long are made parallel to the lower edge of the external rectus and to the outer edge of the inferior rectus. The flap of conjunctiva between the two incisions is carefully separated from the underlying sclera and turned backward. Von Heppel's tre-

phine, with a 5 mm. crown, is applied to the sclera back of the ciliary body. The instrument is adjusted so that a disc will be cut from the sclera without injuring the choroid, and in this way intraocular hemorrhage is avoided. The vitreous breaks through the retina and choroid, and after collapse of the eyeball and consequent lowering of the tension the conjunctival flap is replaced and held in position by several sutures. In the unsuccessful case the failure was due to injury to the choroid and intraocular bleeding. When the patient comes from a distance, with his general health undermined by weeks of pain, is anxious to return home as soon as possible and cares nothing for the cosmetic result, enucleation would be the operation of choice. Otherwise he performs the trepanation, which is almost painless, is quickly performed, and does not require narcosis, and is, therefore, superior to resection of the optic nerve. Where it fails he prefers evacuation to enucleation. This he accomplishes by an incision through the horizontal meridian of the cornea. The contents of the eyeball are removed by a sharp spoon, and the cavity is filled with wet cotton or gauze, which prevents secondary bleeding. The tampon is removed several days later, and the eyeball shrinks, leaving a flattened stump which communicates good movement to the artificial eye.

A Case of Traumatic Bitemporal Hemianopsia with Hemianopic Pupil Reaction.—Prof. Lange, Braunschweig (*Klin. Monatsbl. f. Augenheilk.*, May, 1904), reports a case of fracture of the skull, the result of a fall, in which there was bitemporal hemianopsia, with preservation of the fixation point, and almost complete absence of pupillary reaction when light was thrown upon the nasal halves of the retina. The sense of smell was lost on the right side, there was bleeding from the left ear and right nostril, and a wound on the right temple. These symptoms pointed to a fracture of the base, extending from the right temple through the roof of the orbit obliquely inward and backward, injuring the right olfactory nerve, thence through the body of the sphenoid, cutting the chiasm in a sagittal direction in the median line. The examination of the nasal fields showed absolutely normal limits both for white and colors, and when light was thrown upon the seeing temporal halves of the retina both direct and consensual pupil reflexes were found preserved. The case is important, as it furnishes clinical proof of the partial decussation of the nerve fibers in the human chiasm, which has been proved experimentally by Nicati in young kittens and by Bernheimer in monkeys. The preservation of the normal nasal fields proves definitely that in man the nasal half of the

retina is supplied only by the decussating fibers in the chiasm, the temporal half by the non-decussating fibers. The retention, moreover, of the consensual pupillary reaction, when the temporal halves of the retina were stimulated, proves that there must be a central connection between the sphincter nuclei in the floor of the fourth ventricle, which has been asserted by Bernheimer, but denied by Bach.

ABSTRACTED BY HAROLD GIFFORD, M.D.,
OMAHA, NEB.

On the Intravenous Application of Salicylate of Sodium—

In view of the importance of the salicylates in ophthalmic therapeutics, the following abstract of the article of Felix Mendel (*Fortschritte der Medizin*, vol. xxii p. 17) deserves a place in the RECORD:

The endovenous application of drugs possesses important advantages over the subcutaneous method, since it is not only less irritating and painful, but is also decidedly stronger and more certain in its effects. The watery solutions of salicylic preparations, however, especially sodium salicylate in a 20 per cent. solution can not be considered safe agents for unlimited application in this manner. The stronger solutions injure not only the blood cells, but the endothelium of the vessels. The endovenous salicylic injections, therefore, need to be made with especial caution. Only good sized veins should be chosen and these dilated ad maximum by repeated stasis. Further, it is necessary to restore the circulation in the vein by the most speedy removal of the ligature after the injection. The vein must be changed for every injection. To prevent pain, Mendel uses the following combination: *Natr. salicyl.*, 8.75; *cafein*, 1.25; *aqua. dist. ad.*, 50.0. This combination, of which Mendel gives adults 2 grms., repeated every twelve hours to three days, is borne without pain or other signs of local irritation. The effect is most striking in its rapidity and certainty. All acute rheumatic pains in the muscles, nerves or pleura, disappear almost immediately after the injection. This is not due to suggestion nor to a purely analgesic effect, but to a specific influence on the rheumatic process; because immediately after the injection the swelling in the inflamed joints subsides; and on the other hand, pain from other causes remains entirely uninfluenced. The rheumatic fever is influenced only so far as the general injection of the organism is diminished by this treatment.

Results are also obtained by this method in cases where the internal or external application of the salicylates has produced no

result. The intravenous injections are especially advantageous on account of their freedom from all unpleasant complications. There occur no chills nor exhausting sweats, no tinnitus, nausea nor other disturbances of the digestive tract, no irritation of the kidneys, etc. The heart also is not at all unfavorably influenced, although the injections do not altogether prevent heart lesions.

This specific action of salicylic acid does not depend upon an antibacterial effect. The pain and the joint affections are due to the toxic products of the specific germ and salicylic acid must have an especial affinity for these toxins, converting them instantly into harmless compounds which are readily absorbed. On this theory can be most readily explained the slight influence which salicylates have upon lesions such as endocarditis, which are the direct effect of bacterial growth.

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

CHICAGO, DECEMBER, 1904 VOL. XIII. No. 12. NEW SERIES

Editorials.

"THE NEW OPHTHALMOLOGY."

It seems that Dr. George M. Gould of Philadelphia is a prophet ordained to enlighten the world on new ocular truths. Numerous articles from his pen have appeared of late which incline us to that opinion. An article on "The New Ophthalmology" appears in the *Journal of the A. M. A.*, vol. xliii, Nos. 21 and 22, 1904, which was read before the Section on Ophthalmology, International Congress of Arts and Science, Universal Exposition, Saint Louis, Sept. 24, 1904. One would suppose from the general tone of this article that Dr. Gould is almost the only one in possession of the knowledge that ametropia is capable of producing morbid systemic consequences. Almost, if not quite, all the ills that flesh is heir to, according to Dr. Gould, not only may be, but generally are in some direct or indirect way caused by ametropic eyes.

After a succession of dogmatic statements, wherein he maintains that ametropia causes practically all ocular diseases, diseases of the frontal sinus, appendicitis, all kinds of gastro-intestinal diseases, anorexia, denutrition, spinal curvature, kidney and liver diseases, heart affections and pulmonary derangements, and last, but not least, MIGRAINE, he turns his binoculars upon his professional brethren. The neurologist and psychiatrist especially receive his attention. They are as a class densely ignorant of the etiological importance of ametropia in neurology and psychiatry. This new truth comes as a surprise to us, as we have hitherto been rather impressed with the idea that neurologists of our acquaintance are very much alive to the importance of ametropia and the necessity for its correction.

Dr. Gould would have us believe also that even the ophthalmologist does not recognize the importance of ametropia, and that there are, as a matter of fact, only a few of us that are capable

refractionists. Moreover, the average oculist is, indeed, so afraid of not "standing well with the profession" that he does not claim for his glasses many cures he has actually effected. In fact, the profession at large, whether doing special or general work, is taken to task for not having accepted the "new truth."

Evidently Dr. Gould believes, and would like to see the profession advise, that all patients first consult an oculist, and then, providing the refraction be found normal, to return for such other treatment as might be found indicated. In reality, so runs the creed of Dr. Gould, the oculist is *the* medicine man, the rest of the professional world being merely adjuncts, capable only of treating such patients as the oculist can not handle. If Dr. Gould has any idea of doing ophthalmology a good turn he had better go about it in some other way. It will require something more than dogmatic statements, drastic and caustic remarks about neurologists, gastrologists, gynecologists and all other 'ologists to make them have more respect for ophthalmology than they now have. While Dr. Gould may think that he is doing a good work, we think he is calling down ridicule on our specialty. Fortunately he censures the oculist as much as all others in the profession, and, therefore, does not make us a party to his theories.

The medical profession at large, we believe, is constantly availing itself of the services of the oculist, both for refractory work and for ocular disease. Further, it is through the recognition by the medical profession of ophthalmology as one of its branches that the latter stands to-day on a firm basis.

Ophthalmology is a young science, and has much to learn. It has brilliant possibilities, but needs wise and conservative guidance rather than that of narrow enthusiasts. It has never posed as a cure-all and we hope it never will. It is not capable of working miracles. Let us continue to maintain a high standard, not by words so much as by deeds, and let us admonish those in our ranks who become overzealous to remember that Rome was not built in a day, and that its fall was due to causes that are just as active to-day as a thousand years ago.

Ophthalmology is not a synonym for medical science, and, with all due respect to Dr. Gould, we hope it will never try to be more than a very humble member of the medical family. "The New Ophthalmology" as portrayed by Dr. Gould is a very vain "ology." We hope he will lock this vain "ology" in his refraction cabinet, where we feel sure it will remain undisturbed and in perfect quiet.

MELVILLE BLACK.

Correspondence.

VERNAL CONJUNCTIVITIS.

To the Editor of the Ophthalmic Record:

In the October, 1903, issue of the *Record*, I reported a case of vernal conjunctivitis cured, as I believed, by ablation and the x-ray. I realized at the time that the warm weather of the following summer would supply the test that might shatter all our hopes, although the conjunctivæ looked perfectly smooth and healthy as seen by Drs. Pusey, Wood, Woodruff, Guilford and myself. Numerous professional colleagues gloomily believed that the summer would witness a return of the disease, and such opinions, with the past record of this hitherto intractable malady, were surely most natural.

I am now happy to report that this young lady spent last summer mostly in Kentucky and New York (not in the mountains or at the seashore), and that she has not had a single unpleasant symptom. Her conjunctivæ are perfectly smooth and healthy, and her palpebral apertures have become widely expanded, totally doing away with her previously sleepy appearance, and giving to her face an entirely different expression. This case is undoubtedly entirely and permanently cured, and should be so placed upon record.

FRANK ALLPORT.

92 State Street.

Reports of Societies.

BERLIN OPHTHALMOLOGICAL SOCIETY.

Prof. von Michel, President, in the chair.

DR. MENDEL showed a case of congenital paralysis of both external recti due to absence of their nuclei; the boy is now 7 years old; 9 such cases are on record. Prof. von Michel remarks that he once met a congenital paralysis of the internal rectus.

PROF. GREEFF showed a girl of 12 years who shed tears of white color containing a considerable quantity of albumin.

DR. POLLACK spoke of a case of metastatic carcinoma of the choroid; the primary one was a cancer of the breast of a man. Enucleation was considered superfluous since there were other metastases.

PROF. GREEFF spoke on the results of his examinations of school children which he, together with others, had undertaken at request of the government. It has already been published in the *Klin. Monatshefte*.

Discussion.—Dr. Hirsch does not believe that myopia seldom makes progress after 20 years of age. He examined the eyes of 750 printers and found out that a large percentage had gained their myopia after that age. The etiology of myopia is by no means clear.

PROF. VON MICHEL deplores the fact that school-myopia (such with a comma) is not differentiated better from hereditary myopia which shows a staphyloma.

DR. THORNER demonstrated a simple method of measuring light in schools. After a short recapitulation of the various methods of determining the daylight at each desk (the subjective methods by means of test types, the various photometers, and the "angle-method"), he explained the construction of his instrument, based upon somewhat similar principles as the photographic measurement of the illumination of the school-desks. A small mirror throws the light from the window through a small convex lens on a white card; a second white card, which shows the ordinary illumination of the desk, is looked at through a tiny round hole at the same time so that at a single glance anyone is able to tell whether the light is sufficient or not by comparing the first card and the color of the "hole." The whole contrivance is hardly as large as a child's fist, simple and very ingenious.

Discussion.—Dr. Czellitzer does not understand what good the instrument is, since it does not compare the normal amount of illumination required in schools with the desk-illumination, as far as he can see.

Dr. Thorner replies that the illumination of the first card is exactly the normal amount required, no matter how light the day might be.

DR. WIESINGER describes a case of mydriasis synchronic with inspiration. The woman, of 60 years, suffered from paralysis agitans, paralysis of the sympathetic; patellary reflexes were wanting. There was ptosis, enophthalmus and hyperhidrosis. The pupils were elliptical (cat-like). Argyll-Robertson was present; every time the patient breathed heavily the pupils widened horizontally. Dr. Roch, in Geneva, lately reported a similar case.

Discussion.—Prof. Hirschberg made a philological remark as to the word "hippus."

Dr. Muench has seen another case associated with some trouble of the lungs, and asks whether in this case the lungs were in order.

Dr. Wiesinger answers that heavy breathing sometimes does widen the pupils; for instance, this is so with him.

PROF. HIRSCHBERG showed a piece of iron (4 mgr.) which he had extracted from an eye. The operation was difficult, because the piece of steel was imbedded exactly on top of the disc. He had never operated on a similar case.

Prof. von Michel remarks that in the atlas of Oeller there is the same picture.

Prof. Hirschberg says, not operated on.

DR. E. H. OPPENHEIMER, Berlin.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Thursday, November 10, 1904.

John Tweedy, P.R.C.S., President, in the Chair.

INTRAOCULAR TUMOR COMPLETELY ENVELOPING THE OPTIC DISC.

Mr. Simeon Snell (Sheffield) related this case occurring in a farmer, aged 37. He was first seen last February, and a month previously he had discovered loss of sight of the right eye. Vision equaled fingers indistinctly. An opaque mass covering the optic disc was discovered. It was more cyst like, and appeared less solid than was noticed later on. The family history was good.

After a few weeks the patient disappeared, and was not seen again until the beginning of August, by which time the mass had become considerably larger and the appearance of solidity was much more noticeable. The mass was large and nodular, and about $2\frac{1}{2}$ disc diameters in size, somewhat circular in form, and completely hiding the optic disc from view. The most prominent part could just be seen with $+11D.$, but there was an area close to this which could be best seen with $+6D.$ and the macular region with $+2D.$ A colored ophthalmoscopic drawing made at this time was shown. The diagnosis made was that of a tumor growing from the disc or in its immediate neighborhood. The eye was enucleated at the end of August, and the nerve was removed as far back as possible. Close to the outer side of the nerve sheath was a small black nodule the size of a pinhead. Mr. Treacher Collins examined the eyeball and reported that at the posterior pole was a melanotic growth. Its base was 7 mm. in length and extended from the choroid about the optic disc to a point a little lower than the center of the disc.

SOME ANOMALOUS SARCOMATA OF CHOROID.

Mr. Herbert Parsons read a paper on "Some Anomalous Sarcomata of the Choroid." Six cases were demonstrated by means of lantern slides. Case 1 was an ordinary case of melanotic sarcoma of the choroid in the third stage, the extraocular portion being unpigmented; the patient died a year after the removal of the eye, and was found to have secondary, bile-stained, spindle-celled sarcoma of the liver and squamous-celled carcinoma of the ribs, lung and mediastinal glands. Cases 2 and 3 were almost identical in appearance and in general character. They contained very necrotic round angiosarcoma of the choroid. There was extensive necrosis of most other structures in the eye. Case 4 had an extraordinary family and personal history: the mother and younger sister each had an eye removed at Moorfields for sarcoma of the choroid, and the patient had had her breast removed for a tumor. There were two small melanotic sarcomata of the ciliary body and anterior part of the choroid, and a large bilobed necrotic, angiosarcomatous mass springing from the choroid posteriorly. The other structures of the eye were necrotic, and there were many hemorrhages. Cases 5 and 6 were necrotic angiosarcomata springing from the choroid at the posterior pole of the eye. The other structures of the eye were also necrotic.

The points especially insisted on were as follows: The similarity

of the growths macroscopically to organizing blood clots and their apparent origin in the retina—an appearance which was demonstrated to be erroneous. The varying occurrence of the hemorrhage, the importance of not overlooking sarcoma of the choroid in cases of severe intraocular hemorrhage (cf. Verhoeff), and the relation of the hemorrhage to the necrosis, whether a cause or a result, both probably occurring. The necrosis, its dissimilarity from the patches of necrosis in ordinary sarcomata, its universality, not only throughout the tumors, but also in other parts of the eye. The deductions are that the necrosis is not due to a preliminary iridocyclitis (cf. Løber and Krahnstöver), for there is little inflammatory reaction—infiltration—inside the eye; that it is not due to thrombosis and only partially to hemorrhage, for the intraocular tumors are necrosed as a whole, and anastomosis in the eye is too free to permit of this result; that it is probably due to endogenous microbial infection, essentially by means of toxins universally distributed throughout the eye by the intraocular fluids, hence the comparative absence of leucocytes. Microbes are also probably present, finding a suitable nidus in the necrotic tissues, hence the slight amount of inflammatory reaction in the less severe cases. The theory is comparable with the most probable theory of sympathetic ophthalmia, viz., generalized endogenous infection by (?) invisible organisms (cf. of Romer). It explains the marked inflammatory reaction sometimes seen outside the eye. The growths are probably of relative low malignancy, on account of their genesis (peritheliomata), their necrotic condition and the thrombosis of the vessels. If, therefore, they were not excised, they would shrink and become examples of shrunken globes containing choroidal sarcomata. Further, they are an early stage of this small group, a stage which has not before been described. That the eyes would inevitably shrink is shown by the albuminous constitution of the intraocular fluids, which would lead to diminished filtration and stasis; moreover, the universal necrosis must lead to shrinkage. The growths are also identical in type with those previously found in shrunken globes (cf. Løber and Krahnstöver). Such tumors are probably frequently overlooked, owing to their great resemblance to blood clots. They are of great importance, practically from the point of view of prognosis, and especially theoretically, since they mark a stage which has previously escaped observation in the life history of a group of sarcomata.

SECTION ON OPHTHALMOLOGY, COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting, November 15, 1904.

Dr. S. D. Risley, Chairman, presiding.

Dr. Alexander Duane of New York (upon invitation) described and illustrated upon cases the methods pursued by him in the *Determination of the Various Forms of Anomalies of the Ocular Muscles*. After briefly referring to the usual tests employed, he gave a description of the routine he followed in making examinations and the reasons for it.

Test Objects.—To insure accurate fixation the test object must be sharply defined, well separated from surrounding objects, and just large enough to be distinctly visible. Projection is eliminated by placing the object on or but little in advance of a large blank surface, serving as a background. It is important that the object should not consist of vertical or horizontal lines, or a figure bounded by such lines, since the patient unconsciously strives to unite or make continuous with each other the parallel lines seen, and masks the deviation that is present. This tendency to fusion is not so great with points or with round objects.

Fulfilling all the requirements are: (a) A small, sharp, bright light, set close to a large black background; (b) a fairly large round target with a round bull's eye, the latter just large enough to be seen at the given distance.

Tests.—It is necessary to distinguish between tests that determine: (a) The position assumed by the eyes at rest—the *static tests*—and (b) those that determine the ability of the eyes to perform the various normal movements—*dynamic tests*.

1. *Tests of Binocular Fixation.*—Of the numerous static tests, the tests of binocular fixation, namely, the *screen test*, affords a knowledge of whether the two eyes fix accurately the same object at the same time, or whether one or the other deviates or tends to deviate. This test I apply as follows:

The patient is placed with his head straight and the eyes in the primary position, and directed at the test object. A card is passed from one eye to the other, and, standing a little to one side, we notice whether either moves when covered (movement of deviation) or jumps back into place when uncovered (movement of redress). If any movement is detected, prisms are placed before the eye, and are rapidly exchanged for stronger ones until not only is the original movement abolished, but there is a slight

movement in the contrary direction. By deducting 2 degrees from the prism that just produces a perceptible contrary movement, a close measure is obtained of the amount of the deviation.

If there is no screen deviation to start with, we can generally say that there is no heterophoria greater than 1 degree, or at most, 2 degrees. In such a case I take a 2-degree prism and place it before one eye, first base in and then base out. If now the prism, base in, produces a slight but perceptible movement *in* behind the screen, and the prism, base out, a similar slight movement *out*, I feel assured that there is orthophoria, or at all events, no heterophoria greater than 0.5 degree. If, however, it should take a prism 3 degrees base in to produce a movement in behind the screen and only 1 degree base out to produce a movement out, we would say that the test showed 1 degree of exophoria.

In cases of paralysis and often also in cases of squint, it becomes of importance to determine the relative amount of the primary and secondary deviation. To do this we first measure the screen deviation, in the way just outlined, with the prism placed before the right eye, and then, carefully keeping the patient's head and eyes in the original position, measure the deviation by a prism placed before the left eye. Thus in a given case with paresis of the right externus, I may find with the prism before the right eye an inward deviation of 10 degrees in the primary position, 18 degrees when the eyes are directed on the right, and 5 degrees when the eyes are directed on the left. Placing the correcting prism before the left eye, I find the measurements to be 15 degrees in the primary position, 40 degrees with the eyes directed to the right, and 5 degrees when they are directed to the left. That is, when the patient looks on the left, the primary and secondary deviations are equal; when he looks straight ahead, the secondary is 1.5 times the primary, and when he looks on the right, the secondary is over twice as great as the primary.

Having made the screen test in the foregoing way, I then proceed to determine by it whether the deviation found is a squint or a heterophoria. To do this the patient looks with both eyes open at the test object. The screen is then placed before one eye, say the right, and then suddenly removed. If this eye deviates when covered, but returns to fixation when uncovered, while the other eye, which has remained uncovered, remains in the position of fixation, we are dealing with a case of heterophoria. If under the same conditions neither eye moves (and yet alternate covering has

shown that there is a well-marked deviation), the right eye is squinting. If both eyes move, the left eye is squinting.

2. *Tests for Binocular Vision.*—Of the tests of binocular vision, that is, those which show, not so much whether the eyes deviate as whether both see the object in the same place or not, the *parallax test* affords better than any other subjective test a comparison of the relations of the eye as regards binocular vision and binocular fixation. It is conducted simultaneously with the screen test, the patient indicating whether the object moves as the screen is transferred from one eye to the other.

The recognition of this parallactic movement is really a recognition of diplopia: only, instead of the double images being seen simultaneously they are seen in succession. Thus, suppose the eyes deviate in when screened, then when the screen is passed from the right eye to the left, the right eye, which is, so to speak, caught in the act of deviating inward, sees the object not straight ahead, as the left eye (which was fixing) saw it, but off to the right, i. e., the object appears to the patient to have made a jump from left to right. This condition, which is strictly analogous to homonymous diplopia, is properly called an homonymous parallax. So, too, if the right eye was turned out behind the screen, the object, when the right eye is uncovered, would appear to move to the left (*crossed parallax*): if the right eye was higher the object would appear to move down (*right parallax*): if the right one was lower, the object would appear to move up (*left parallax*).

Really, the eye should be aware of a double jump of the object looked at. In homonymous parallax, the object, when the right eye is uncovered, should appear to jump first to the right and then back to the left — (the latter movement corresponding to the movement of redress of the eye itself). Some few do, indeed, perceive this double jump, and occasionally we find some that see only the second movement, getting thus an *inverse* parallax, which is just opposite in direction to the ordinary, or *direct* parallax. This should occasion no confusion.

Occasionally the parallactic movement is not perceived at all, and, not infrequently, even if it is perceived, the patient refuses to admit its existence until by the use of some artifice—the production, for instance, of an artificial parallax by means of prisms—its presence is forced upon his attention. Some few allege that the movement is always in one direction. But in the great majority of cases the test succeeds. The parallactic movement is measured by means of prisms: in fact, we measure it when we are measuring the screen-deviation, the prism that corrects one in most instances

serving to correct the other also. In the cases of the parallax, the prism that just abolishes the movement measures the deviation.

Phorometer.—I use the ordinary Stevens' phorometer and find it usually reliable, although at near points it sometimes gives an excess of exophoria, particularly if too coarse a test-object is used.

The amblyoscope may be used as a phorometer, particularly if it is fitted with a vertical movement, as in Dr. Black's modification, and if, furthermore, it has a graduated arc, on which the amount of rotation required to put the two pictures vertically over each other can be read off directly.

The *Maddox rod* usually gives an excess of esophoria (about 1 degree more than the other tests), so that if it shows 1 degree of esophoria, I expect to find almost complete orthophoria by the parallax, screen and phorometer. With some few the test fails altogether, because of the strong tendency that they show to bring the line of light into the image of the flame, even when actually there is a very marked deviation present.

Determination of the Declination.—This can be done either by Stevens' clinometer or by the Maddox rod clinometer. In general, little of clinical value is gained by the measurement of declination, except occasionally in complicated cases of paralysis. Otherwise, the disturbances of declination seem to me rare, and when they do occur are to be regarded simply as pathologic curiosities. I have never been able to persuade myself that, except to a very insignificant degree, they were productive of symptoms.

The dynamic tests comprise:

1. *Test of monocular movement* (determination of the maximum excursive power of each eye in all directions), i. e., of the *monocular field of fixation*. This is done either with the tropometer or perimeter (the test object used with the latter being a fine double dot on a small card). The test is of little value except for differentiating between paresis and spasm in certain obscure cases. Generally it gives very varying results, and, moreover, an eye which by it seems to have normal excursive power in all directions may, as the diplopia tests show, lag considerably behind its fellow in making some particular movement.

2. *Tests of Binocular Parallel Movement.*—I determine the *field of binocular fixation* and the *field of binocular vision* simultaneously. I cover the patient's right eye with a red glass, and then standing in front of him and about three feet away, hold a candle, or better, a small electric light, directly in line with his eyes. From this point, the "eyes-front" position, I carry the light first to his

left, and then successively up and left, up and right, to the right, down and right, and down and left, skirting thus the whole periphery of his field of fixation and occupying in turn each one of what may be called the *cardinal positions* of the gaze. At each cardinal position I pause and ask the patient if he sees one light or two, what color the light is, where the red light is with relation to the white and how far off from the white. I thus determine the amount and kind of diplopia in each of the cardinal positions. In making this examination it is almost a necessity to have some short-hand method of recording—for, as the examination is very tiresome to the patient, it must be done quickly, and yet it is not always safe to trust to memory and wait until we get through before putting down our results. My own abbreviations are DH=homonymous diplopia, DN=crossed diplopia, DR=right diplopia (i. e., vertical diplopia with the image of the right eye below), DL=left diplopia (i. e., vertical diplopia with image of right eye above), >>=progressively increasing, <<=progressively diminishing. I also denote the six cardinal positions, "eyes right," "eyes left," "eyes up and left," etc., by Er, El, Eu & l, Eu & r, Ed & r, Ed & l. Thus Eu & r, DL >> (read "eyes up and right, diplopia left increasing") signifies "there is vertical diplopia with the image formed by the right eye above, and this diplopia increases progressively as the eyes are carried up and to the right." As we note the diplopia that the patient shows in each cardinal position, thus delimiting his field of binocular single vision, we also observe whether one eye lags behind the other at any point, and thus ascertain whether his *field of binocular fixation* is normal or no. This latter may also be examined in the ordinary way by making the patient, with both eyes open, follow a pencil held a foot or so from the eyes. In making these two tests, of course, it is essential, first, that the patient should keep his head still; second, that he should really try to follow the light with his eyes.

3. *Tests of Converging Power.*—(a) The relation between the amount of imbalance for distance when the eyes are not converging, and for near when they are converging, affords important indications as to the presence of any excess or deficiency in the converging power. (b) *Convergence near-point.* I measure the distance of the convergence near-point from the root of the nose, using for a test object a fine dot, a pencil point, or a small bright light. In cases of hyperphoria, when even if the convergence is normal the patient finds it hard to keep up the effort because the images tend to diverge vertically, these test objects are replaced by a vertical line.

The attempt to determine the convergence near-point should be made even in those cases where there is no binocular fixation, as in divergent squint. Here it is of importance to know whether the patient does or does not make an attempt to converge, and, if he does, how nearly he succeeds in bringing the eyes together. In many cases the attempt at convergence will be kept up until within two or three inches of the nose, the eyes getting nearly into line, but never quite succeeding. Such cases are of much better prognosis than those in which the convergence-effort is almost lacking.

(c) *Prism-convergence (adduction).*—This is of comparatively subordinate importance as a test, the two previous tests affording much more valuable indications. Nothing is gained by estimating the relation between prism-convergence (adduction) and prism-divergence (abduction). In one and the same patient prism-convergence varies greatly from time to time and can be increased by practice to four or five times its original amount; prism-divergence is nearly a constant quantity and can not be increased by exercise.

4. *Tests of the Diverging Power.*—(a) The relation between the amount of imbalance at near-points, when the eyes are not diverging, and the amount for distance, when they are, affords a valuable indication as to whether the eyes diverge excessively or not enough. (b) *Prism-divergence*, determined by the amount of prisms, base in, which the eyes can overcome when looking at a distant object, is also a valuable measure of the diverging prism. A prism-divergence under 3 degrees indicates subnormal, and one over 9 degrees a pathologically excessive degree of divergence.

5. *Tests of Supravergence*, or the ability of the eyes to diverge in a vertical plane, measured by prisms base up or down, afford very little information, and can usually be dispensed with.

Practical Routine.—Not all the tests are needed—except in complicated cases, when we may require every help we can get. To make a satisfactory examination we must perform the test for binocular fixation and one or more tests for binocular vision, determining by both means the imbalance for both distance and near, and we must get a good idea of the ability of the eyes to converge, diverge, and make parallel movements. In choosing our tests, we must insist, in the first place, upon accuracy; in the second place, upon delicacy; and, out of the several tests which are accurate enough and delicate enough to serve our turn, we will select those that are the simplest and quickest. These considerations lead us to the accompanying routine.

- I. Determine deviation for distance by
 - (1) Screen and (2) parallax simultaneously.
 - (3) Maddox rod.
 - (4) Phorometer.
- II. Determine deviation for near by
 - (5) Phorometer.
 - (6) Screen and (7) parallax simultaneously.
 - (8) Maddox rod.
- III. Determine
 - (9) Convergence near-point.
 - (10) Prism-divergence.
 - (11) Prism-convergence.
 - (12) Field of binocular fixation and (13) field of binocular single vision taken simultaneously.

This answers for all ordinary cases; indeed, I usually omit the determination of the prism-convergence and often omit the Maddox rod for near, and if the other tests show concordant results, I often omit the phorometer for both distance and near. With these omissions, examinations can be made in two or three minutes.

In squint all the tests of binocular vision usually fail us, and we are dependent on the screen test, which is hence of especial value; also upon the determination of the convergence near-point and upon the excursions of the eye. I regard the screen test as far superior to the perimeter or to any similar device that depends upon the position of the corneal reflex.

In paralytic cases the special routine should be: Screen test in different directions of gaze; special care to measure primary and secondary deviation; special care in determining field of binocular single vision and field of binocular fixation; determination of declination in paralysis of elevators or depressors. If necessary, use tropometer or perimeter.

WILLIAM M. SWEET, M.D.,
Clerk of Section.

Notes and News.

DR. BULLER of Montreal has removed to 128 Stanley street.

DR. E. WOLFFLIN has been recognized as privat-docent for ophthalmology in University of Basle.

A NEW edition of Julers' Handbook of Ophthalmic Science and Practice—the third—has just been issued.

DR. HERMANN ULBRICH has been recognized as privat docent of ophthalmology at the German University at Prague.

DR. BERT ELLIS of Los Angeles is secretary of the Section of Ophthalmology in the Pan-American Medical Congress.

AMERICAN ACADEMY OF OPHTHALMOLOGY AND OTO-LARYNGOLOGY.—This society will hold its next meeting in Buffalo on Aug. 23, 24 and 25, 1905. President, H. W. Loeb, St. Louis, Mo.; Secretary, George F. Suker, Akron, Ohio.

OPHTHALMIC PRIZE AWARDED.—The municipality of Parma, Italy, offered a gold medal for the best work on "Prophylaxis of Trachoma and Schools for Trachoma Subjects." The medal was awarded to Dr. Giulio Valenti, an ophthalmologist in Rome.

PHOTOGRAPHY OF THE FUNDUS.—Professor Dimmer of Graz exhibited at Lucerne photographs of the fundus of the eye taken with an apparatus which cost more than \$3,000 to perfect. The views thus obtained of the fundus are truly remarkable, and they were the sensation of the day at the congress.

EYEGASSES IN THE FOURTEENTH CENTURY.—The *Clinico Oculistica* for September relates that a portrait of Cardinal Ugone, painted by Thomas of Modena in the fourteenth century, depicts the cardinal writing, with glasses on his nose, the lenses evidently convex.

At a special meeting of the Ophthalmological Society of the United Kingdom, held Nov. 3rd, Mr. J. Priestley Smith was awarded the Nettleship medal. At this same meeting the Bowman lecture on "The Progressive Evolution of the Visual Cortex in Mammalia" was delivered by Dr. F. W. Mott.

PROGRESS OF VERTICAL HANDWRITING.—The system of vertical handwriting has now been introduced into all the schools of Florence, Italy, the king, Victor Emmanuel III, setting the example by using this system. The king of Spain has also been trained in it, and vigorous efforts are being made to introduce it into the schools of Spain.

IN *The Lancet* of Nov. 12 there is a review of Dr. G. Boldt's work on *Trachoma*, which has been translated into English by J. Herbert Parsons and Thomas Snowball. Among other commendatory statements in the review one finds the statement: "There is an excellent bibliography. The monograph deserves careful study by every ophthalmologist."

PREVENTION OF SCHOOL MYOPIA.—A recent article, cited in the *Bolletino d'Oculistica* for September, insists that the eyes should be rested for ten minutes after every hour of close application, the rest to consist of looking at distant objects. Every two hours of study should be alternated with an hour of physical training. This not only relieves the mental and physical strain, but also serves to stimulate the ocular circulation.

PROFESSOR HIRSCHBERG TO ATTEND THE PORTLAND SESSION. — The officers of the Section on Ophthalmology announce that Professor Hirschberg of Berlin has accepted an invitation to be the guest of that section at the Portland session and to present an address. In his letter to the chairman of the section, Professor Hirschberg says: "This will be my third, and, I think, my last trip to the United States." The section officers are to be congratulated on securing Professor Hirschberg, as his reputation among ophthalmologists is worldwide.—*Journal A. M. A.*

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